

women and society

THE ROAD TO CHANGE

edited by
Ashok S. Kolaskar
Motilal Dash

OXFORD

Talking about their life and work, celebrated scientists, social activists, writers, industrialists, administrators, artists, and corporate leaders reveal how women have contributed to change and development in a society that is largely governed by patriarchal mores.

In this book Sonal Mansingh, Kiran Mazumdar-Shaw, Naina Lal Kidwai, Kiran Bedi, Pinky Anand, and Rajashree Birla, among several others, have come together to narrate their personal journeys: stories of trials and

tribulations, of pain and struggle and determination to different age groups, economic backgrounds, two contributors with varied careers, and together to script hope, success, and show how proper training, independence drive to innovation, change in the lives of the society at large.

Introduced by A. Motilal Dash, the

power will appeal to anybody interested in the story of societal change wrought by women over centuries.



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edited by
Alicia S. Kohnstien
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INTRODUCTION

Indian Science Congress Association (ISCA) has given an opportunity to our young university—Kalinga Institute of Industrial Technology (KIIT University) at Bhubaneswar, to host the 99th Indian Science Congress, one of the largest conglomerations of scientists in the world. Indian Science Congress (ISC) has emerged as a platform to elucidate the science policy of the Government of India and facilitate in-depth discussions amongst scientists from different parts of the world and in particular from India—young and old, established and upcoming scientists, science administrators and policymakers, science communicators, and so on.

Every year, ISCA chooses a contemporary and highly relevant theme for its annual meeting. The theme for the 99th Indian Science Congress is ‘Science and Technology for Inclusive Innovation: Role of Women’. The host institution, KIIT University, and the organizing committee of the Science Congress are working together to add a new dimension to the Science Congress to augment the main theme. This year’s Congress will also organize a ‘Women’s Science Congress’ for two days.

Such a decision prompted us to expand our horizons to areas outside science. We tried to think holistically and analyse the role women have played in the development of the society not just through the portal of science but through their contributions to every conceivable functional avenue and how the developmental processes can be further accelerated

by including large number of women as agents of change in the development process. After several discussions we decided that we must showcase the lives of some women who have been highly successful, particularly in the male-dominated sectors of society. The list of such successful women became soon very long, indicating that in almost every part of the world and in every sphere of life, there are women who have broken through the glass ceiling and achieved positions of eminence. We requested several such women, both from India and abroad, to write an essay describing in brief their life, their contributions to the society, as well as their message to the new generation. Each one of them has achieved success in her chosen field and defied traditions. They have managed efficiently their responsibilities as daughter, wife, and mother, and at the same time, have set an outstanding example for the society by achieving success beyond any doubt. We tried to choose high achievers from different walks of life, such as science, education, social work, industry, business, administration, policy-making, and so on. We are delighted at the excellent response we received from all those whom we had requested for an essay. The fact that these women found time in their busy schedules to write inspiring essays for this volume clearly goes to prove their commitment to help the younger generation. It is our conviction that these are the kind of stories, when given broad-based exposure, will go a long way in helping our country achieve true freedom as envisioned by the Father of our Nation, Mahatma Gandhi.

Today, India's gross domestic product (GDP) is growing at an enviable rate and India is emerging as an economic power. The world is respecting India and its human resources. However, this growth has mixed blessing. There are serious concerns about erosion of ethics and values, and increase in corruption at every level, which is fermenting widespread unrest amongst the masses. The efforts of Anna Hazare to fight corruption received spontaneous support never thought possible by social scientists, thinkers, and experts in political science. It may not be long before this kind of discontent spreads beyond control and nullifies the gains of development.

India is also a melting pot of various traditions and a land where diametrical opposites coexist. Here we give women the status of God and we are taught that 'jatra ramani pujiyante tatra ramanti devatah' meaning angels live where women are revered. We invoke various

goddesses to vanquish evil, bestow us with wealth, wisdom, and so on. Numerous laws have been put in place in the past sixty years to empower women and accord them a status at par with men. India is one of the few countries in the world where women have occupied the highest positions in almost every field or part of society—as president, prime minister, chief ministers, supreme court judges, captains of industries, the armed forces, as scientists, educationists, social workers, writers, poets, artists, and so on. They are recognized for their abilities and contributions in their respective fields. Ironically, ours is also the country where women are harassed and sometimes killed for dowry. Female foeticide and infanticide prevalent in several parts of the country has resulted in adverse female to male ratio that, in turn, is causing major social imbalances. Rural women continue to experience limitations in access to education and employment.

It is in the context of this social milieu, we believe, that these essays become very relevant and timely. The ability of these remarkable women to work hard and achieve success even under adverse conditions, their approach to life and its challenges, and their dedication and commitment, as can be seen from the essays in this volume suggest that in future the society can benefit by emulating such women while dealing with some of its ills. Women in general, and Indian women in particular, are using their own special set of management principles as they balance their professional and personal life. We need to provide some kind of a theoretical framework for these management aspects and exploit their managerial skills to solve various societal problems.

Women of future generations are not going to face the same problems and challenges that their predecessors did. In fact, world events including those pertaining to India point that, in future, high achievers among women, as well as current women leaders in their profession, will have to play a very different role. They are part of a new world order and will have to be guardians of ethics and values of the society. They will have to reverse the decline of ethics and values not only by being upright, but also by inculcating these values among co-workers by being at positions of authority, among children as mother, among relatives as sister, in the husband by their role as wife. They will have to guide their sons and daughters and change their thinking about life, greed, physical comforts, and even the definition of success. Their behaviour

must guide the employees, associates, and people around them so that corruption, which is spreading like cancer, can be controlled. They need to continue to behave and lead like women and not try to imitate their male counterparts. Their equality with men need not to be established by behaving like men. Some of the unfortunate trends that we are seeing today, such as women officers and political leaders being corrupt, ill-treating peers and subordinates, using physical punishment to show their authority, using their gender to get quick benefits such as promotion in the job and so on, hurt the society at large and need to be avoided.

Essays from twenty-two women who made a mark in their respective areas are included in this volume. Manju Bansal, Mahtab S. Bamji, and R. Sujatha are scientists who have made immense contributions through their research work in areas of molecular biophysics, nutrition, and mathematics respectively. Each has emphasized the need for quality education and atmosphere as well as opportunities to pursue research. R. Sujatha also suggests governmental policies and their execution so that even the poorest girl child will not be discriminated against. Manju Sharma, a scientist turned science administrator who was secretary, department of biotechnology, Government of India, feels that societal transformation and economic development of a nation is possible only by ensuring easy access for women to science and technology, education, research, and their full involvement in science and technology activities. Anu Aga, Swati Piramal, and Kiran Mazumdar-Shaw represent successful entrepreneurs in energy, clinical and pharmaceutical, and biotechnology sectors respectively. All three are highly conscientious about the role they should play in improving the environment, facilitating education to poor girls, and providing job opportunities to women. According to them, women technologists and scientists need to overcome several barriers and women should get equal access to health, education, jobs, and leisure. Anu Aga also points out the need to prepare more women for entrepreneurship and opening the doors into decision-making bodies.

Sobha Naidu and Sonal Mansingh, the acclaimed dance virtuosos represent the artist community. They believe that the women are entrusted with the task of regeneration and perpetration, a reflection of Prakriti. A woman, according to them, is an epitome of perfection and an uncompromising purist. These authors and others including

Raj Manda point out that women of today and tomorrow have a great responsibility of nurturing well-rounded citizens, capable of appreciating the worth of every individual and understanding the importance of every piece of work to create a composite and harmonious society. Roseann O' Reilly Runte, president and vice chancellor of Carleton University, Canada, discussed evolution of women in the European society and emphasized the importance of education as a profession for women. Other educationists, who contributed essays to this volume include Indira Parikh and Armaity S. Desai. Parikh was the dean of Indian Institute of Management, Ahmedabad (IIMA) for many years and the founder of FLAME, a holistic educational institute at Pune. Desai was chairperson of the University Grants Commission (UGC). During her tenure and after, she was successful in launching a large number of schemes to promote women in education. Many socially and economically backward women benefited and are getting benefits from such schemes. Raj Manda and Pinky Anand are representatives of the professional class of women. Manda is a marketing and strategy expert in the allograft and tissue engineering industry, which is still very new to India. Pinky Anand is a lawyer at the Supreme Court of India. They believe that women must internalize the paradigm of empowerment to reap meaningful benefits of the same. They further opine that women need to use empowerment first in managing situations around them at home and then focus outward.

Pratibha Ray, Kuntala Kumari Acharya, Rama Devi, and Tulasi Munda represent writers and grass-roots social workers. Their essays explore the sufferings of women from different sectors of society. They explain how they worked to improve the conditions of the most deprived women and children by living with them and gaining first-hand experience of the situation. They are working to provide these unfortunate women education and to improve their financial status. They are also working to obliterate superstition-based traditions. Padma Bandopadhyay represents the armed forces, a heavily male dominated sector. In her essay, she has lucidly stated the roles, responsibilities, and hardships a woman has to face to achieve the set goal. In similar fashion, Naina Lal Kidwai represents the banking sector. In this sector, as expected, many women are reaching the highest position indicating clearly their unique ability to manage finances. She points out the need to make rural women financially independent

through education and skill training so that they will get the strength to fight evils present in the society.

Kiran Bedi represents a new class of social workers. After having worked in government system as senior Indian Police Service (IPS) officer, she is now fighting corruption and social injustice. Rajashree Birla is a philanthropist who established hospitals and educational institutes to provide quality health and education to the poor, facilitating their unification with the mainstream of society. These people instead of becoming chronically dependent upon charity are now becoming teachers, skilled workers, and agents of social change.

As mentioned earlier, there are scores of women in India and across the world, who excel every day in their chosen pursuits and can be exemplary role models for young and old, men and women, alike. The space constraints of a volume such as this poses limitations to illuminate the lives of all these individuals. We hope that this book will inspire many such volumes to help us extricate ourselves from the current situation of moral and leadership bankruptcy, not just in India, but across the world.

We hope that the essays in this volume will motivate large number of people to work hard towards achieving their goals and help others, thus exponentially increasing the number of change agents, and set us firmly on the road to transformation for a better tomorrow. The road ahead is equally challenging, albeit in a different way, as it was for these authors. The youth of today, on whom we have pinned our hope as the nation-builders of tomorrow, need to seek out from their own immediate surroundings examples similar to those enumerated in this book and adopt their principles and philosophies to their own unique circumstances with the goal to make a difference to the society.

Mahatma Gandhi (1869–1948), Baba Saheb Ambedkar (1891–1956), Chatrapati Shivaji (1630–1680), Rani Lakshmi Bai (1835–1858), and many other such iconic leaders have been set on a pedestal on at par with gods and goddesses. Since such heights are considered by many as unattainable, these saintly souls are worshipped rather than emulated, unlike the current-day celebrities such as actors and actresses, the much sought after, possible role models. It is our sincere hope that this modest attempt of ours will fill that gap at least to some extent.

We do not have words to thank the contributors to this volume. All these great women have not only sent us their essays in time, but have responded to our e-mails promptly and complied with our every request

pertaining to the development of this book. We are indebted to each one of them for having shared their invaluable thoughts and opening up their life experiences for social good. The recipe for success as can be seen is hard, dedicated, focused work with self-confidence. We also thank Oxford University Press for continuous support and completing the task within a short time span.

December 2011

Ashok S. Kolaskar
Motilal Dash

Kuntala Kumari Acharya

STRUGGLE FOR WOMEN IN BRINGING SOCIAL CHANGE

All humans want to be treated fairly and equally, with no discrimination being made on grounds of gender, colour, age, religion, ethnic group, or place of birth. Unfortunately, disparities on these issues still exist in society. Though every individual should have the right to the basic necessities of life, such as food, clothing, shelter, clean water, and education, yet the poor are often denied of them.

Against such socio-economic backdrop, women too are denied of their rightful place in our society. Most women are not adequately educated and economically empowered to confront with problems of child marriage, widowhood, and so on. Gender inequality stands as a major obstacle in the path of their advancement. Though they participate in the social process and play a significant role in the transformation of society, yet simultaneously, they are also expected to fulfil their duties as mother, daughter, sister, and so on.

My Early Acquaintance with the Plight of Indian Women

Born in 1932, I became a part of the national freedom struggle and devoted my life to the service of the poor, needy, and neglected women of our society. Illiteracy, backwardness, and the inferior status of women, particularly of rural women in pre-independent India, moved me very

much during my childhood and school days. In post-Independent India, though several programmes were launched for the welfare and development of women, no substantive progress was made in the case of rural women. In spite of the enactment of several legislations aimed at improving education, health, and political representation of women to bring their status at par with men, the position of women in our society did not undergo much change. The question which persists is whether rural women really progressed in social, political, and economic spheres so that they need not be reckoned as the 'second sex' of the society?

Accounts from the Vedic period reveal Indian women enjoying equal status with men. In Hindu religion, Shiva and Shakti, the male and female representations of the Hindu pantheon, complement each other to manage the affairs of the world. However, with the advance of centuries, women in India became objects of discrimination, and losing their parity with their opposite sex, they became subjugated to male dominance in rural society.

In independent India, over the past decades, the women of urban areas have acquired the highest academic degrees and have made themselves visible in different sectors of civil society either as scientists or technocrats, or pilots, or political players, or even as entrepreneurs in industrial and business sectors. However, a huge gap exists between the urban and rural women on issues concerning literacy, health, social plight, and economic independence. Even now, more than three-fourth of the rural women are subjugated, marginalized, and exploited by male dominance. Under this contrasting scenario, can India be regarded as a leading country in providing gender equality to its women folk?

However, seeing the wretched plight of rural women who possess talent and ability but rarely get any opportunity to do any constructive work for their family, community, society, or even for the nation, I took social service as a duty. It became a mission from my school days and I dedicated myself to the transformation of the social and economic status of rural women. During my school days, I liked to organize and inspire my schoolmates to do something for the country. I used to convey Gandhiji's (1869–1948) vision of the national struggle for Independence and the role of women in this struggle. Gandhiji and other political leaders who took part in the Swarajya Movement, wanted women to participate in the non-violent movements, but women's response to Gandhiji's call in rural areas was very poor. In fact, women's movement

in India started as a part of the national movement for the common cause of attainment of Swaraj or independence of the country. The call to join the Independence movement appealed to me very much, and during my school days, I tried to bring more and more women to the forefront of the national freedom struggle by making them understand the importance of their role in the Independence movement of the country. In this effort, I, as a young girl, had to face protests from many fronts, particularly from men and elderly women. Men were not yet open to young girls and married women joining the movement.

Promoting Women Education

Born in a traditional Brahmin family of Puri, one of the most conservative and backward districts of Odisha, my parents did not allow me to pursue higher education. After my marriage, the predominant thought that loomed in my mind was how to provide college education for more and more girls. Had there been at least a single women's college at Puri, girls from the town area and the adjacent village and rural areas could have got college education. With this idea in mind, I began persuading the elite and literate group of Puri and liaising with the government officials. As a result, the Puri Mahila College was established in 1961, which started imparting college education to the girls of Puri town as well as nearby villages. My dream turned to a reality and by now, thousands of girls have received the benefits of college education. Though I met strong opposition from many fronts, I overcame all these difficulties through persistent persuasion. It is worth mentioning here that the college began as a private college, by collecting individual donation, and in course of time, it has been taken over by the government of Odisha and has been put on a sound and stable footing.

In the 1950s and 1960s when 85 per cent children were deprived of basic education, I launched five child education programme centres at Puri, which made no distinction of caste, creed, or gender. In this programme, many girls who could not get regular education at schools became literate.

Education of a girl is essential, as she has to play the role of an educator for her children, and in this sense, she has a constructive role in the building of the society and the nation. In order to make the common women aware of their rights, I translated the Hindu Marriage

Act and the Hindu Succession Act into Odia, their mother tongue. Taking important women issues into account and to make people aware of such issues, I authored many short stories, novels, and articles in Odia. I am glad that the above mentioned women's issues could attract the attention of the government and several non-governmental bodies and my writings were acclaimed with awards and prizes. It is not possible to enumerate here the list of prizes and awards, but I may say with all humility that all these works revolve around the major issues pertaining to women's interests.

My Commitment Towards Social Service

I believe that a person of creative vision can be a good writer and social worker because exceptional creative vision is essential in making women useful in the society, enabling them to relate differently to problems faced by women from different aspects. I am convinced from my social work that a comprehensive human resource management policy and its implementation would certainly act as a panacea for all social evils. I have been an optimist throughout my life and a firm believer in humanism and humanitarian activities. I have strong faith in the so-called ordinary men and women because given an opportunity, these ordinary people can perform extraordinarily which, in true sense, would usher in a new dawn of prosperity and happiness for our beloved motherland.

Social service associated with specific vision and dedication is to me a duty rather than a mission. I received the President Red Cross Award from the President of India as the first lady from Odisha who has contributed towards humanitarian service. During the course of my mission, I got the opportunity to work with many eminent individuals, such as Sushil Nayar, Raghu Rameya, Laxmi Menon, Phularenu Guha, Ashoka Gupta, Shobha Ranade, Maa Rama Devi, Malati Choudhury, Acharya Harihara Das, Harekrushna Mahatab, Nabakrushna Choudhury, Biju Pattanaik, Annapurna Moharana, Rabi Ray, and others, whose outstanding personality, social philosophy, and dedicated social work inspired me to devote my life for the emancipation of the downtrodden, neglected, and deprived women and children, particularly from the rural sector of Odisha. I formed a voluntary organization aptly named Nilachal Nari Seba Samity (NNSS), which is the embodiment

of hope and aspirations of women of Odisha. When I was made the chairperson of the State Gandhi Centenary (Women and Child) subcommittee, being a staunch believer in the philosophy of khadi, I moved from village to village to create awareness among rural women about the Gandhian philosophy of Gram Swaraj and to train them how to use the *charkha* and handspun khadi, and thereby, become self-reliant. During 1977–80, when I happened to be the chairperson of the State Social Welfare Advisory Board, I visited many rural areas of Odisha to gauge the real plight of rural women and visualized their problems. Accordingly, I launched many welfare projects and programmes to involve more and more women in economic-oriented projects.

Bringing the Social Cause to the Political Forum

At a certain stage of my social work, I felt that a political forum would strengthen my capability for rendering effective social service. With that idea though in 1957, I was too young to contest, I made a bold attempt to stand from Puri Sadar constituency on Congress ticket for the state legislative assembly. In those days few women came up for a public life. Moreover, Puri being a religious, conservative, and traditional town had very few women coming out of their sheltered lives either for education, or for social service, or for political work. However, I was able to get an unimaginably large support from the public of Puri Sadar constituency. Though I lost the election only by a small number of votes due to internal party conspiracy, I pioneered the use of the political forum for other educated and young women aspirants. My personal satisfaction lies in the fact that since then many women are joining public life and contesting elections. At that time, I felt that for a woman it was very difficult to win the election and to contest against male politicians in a male-dominated society. However, my failure in the election did not stop me from pursuing my mission of social work for women. Rather, it spurred me to commit to social work with more vigour without holding any political office.

Towards Empowerment of Rural Women

For any social work, there is the need for a vision. Generally, visionaries do not need any platform to convert their dreams into reality. Still at

some point of time, a forum is necessary to work effectively in a highly bureaucratic system like India. With this notion in mind, the NNSS was formed in 1965 as my dream child to cater to the economic needs of thousands of women in Odisha.

Keeping in mind the well-being of women and children belonging to the disadvantaged sections like the deprived and the uneducated SCs and STs, my road map for empowerment envisages the empowerment of rural women. The people and poor women for whom I render social service are the real strength of my life. Through meticulous planning and its implementation, the NNSS has been operating as a village-level, industrial, and social reform organization since its inception.

The coir industrial unit is mainly based on profitable utilization of coconut husk, which is available in the coastal areas of Odisha. Traditionally, it was treated as waste material and was used as a domestic fuel. I visited a remote coastal sector of Odisha to mobilize and debar the women folk from using coconut husk as fuel. I made them understand that it was more valuable than gold. I had to overcome many hurdles posed by the male-dominated society, who even attempted to drive me out from the villages. The development and promotion of the coir industry with the necessary technical support from the Coir Board of India benefitted the rural women, providing them with the much needed flexible income, thus resulting in their empowerment. The coir unit emerges out of the vision and conviction that real empowerment of women is possible only through greater economic freedom.

The NNSS also operates small scale craft units to train and produce attractive appliqué-based decorative items. It manages the knitting and sewing units to produce garments and creates products using bamboo and cane, as well as maintains a diary unit. The use of modern energy concepts like solar energy, biogas system, and energy efficient chullas has been promoted. The NNSS has been instrumental in promoting women empowerment, social reforms, social awareness, and khadi concepts among women and rural society to develop rural economy.

I believe that in order to make their voices heard in the family, community, and society, women need to be empowered financially. Even if rural women work at home and in the field for more than fourteen hours a day, they do not earn any cash by way of either wages

or salary. Consequently, they cannot contribute towards the household economically. So even if they put in much of their time and labour in household work, as they do not add a single pie to the household income in cash, they are considered as dependent and subjugated persons. Naturally, this results in the fact that women do not get any recognition in terms of dignity or prominence in the family, as well as in society. They are not the decision makers in family matters. They are always considered as the implementers of the decisions taken by the male members. Considering this stark reality, I ventured to do something for the rural women so that they would be employed or participate in some constructive work that would generate income for themselves, as well as for the family. This has resulted in bringing substantial changes in the quality of life of rural women and their families. At present, though rural families or the rural society poses no resistance or opposition, yet the male individuals now want to earn that money themselves, standing in the way of their female counterparts. Sometimes the bureaucracy and government machinery also show callousness in providing help to those industries, which empower women financially and thus socially. However, inner courage and self-confidence, along with awareness, interest, and involvement should be generated by several agencies among the rural women in order to enable them to get over the obstacles raised from different sources.

Through my vigorous attempt, the illiterate and deprived women proved themselves as the best entrepreneurs in small-scale industry and co-operative sectors. In 2005, I was felicitated as the 'Best Mahila Samabaya Udyogi' by the Government of Odisha and Lifetime Activist in Coir by the Government of India. Prior to that in 2001, I received Vikas Ratna, and in 2002, I received the Jankidevi Bajaj Puraskar, 2001 for humanitarian service and service to women and children. Such awards and accolades give me personal satisfaction in the hope that other women will also be encouraged to do social work for rural women who really need some sort of help for their upliftment. At the same time, this proves that entrepreneurship is not the domain of men only; these women along with women self-help groups are now carrying forward constructive activities, dedicated work, and selfless service on the supporting foundation of the NNSS.

It is a matter of great regret that even after more than six decades of Independence, gender-based violence has been occurring against women. The story is more appalling in rural areas where women are harassed and physically assaulted by family members and at times by the neighbouring community members. Moreover, when they are driven out by their own near and dear ones, they do not have any place to seek shelter. In such distressing circumstances, these women fall prey to persons having vested interests. They find themselves forced to live an unwanted and undignified life. However, the plight of distressed women has attracted the government's attention. A centrally sponsored policy, named Swadhar Shelter Home, has been implemented to rehabilitate distressed women. The NNSS was the first to launch the Swadhar Shelter Home in Odisha.

During times of natural disaster, social service measures have been undertaken in rendering relief and rehabilitation programmes for flood and cyclone victims. During the super flood of 1977 and subsequently in 1982, and the super cyclone that struck the coastal areas of Odisha in October 1999, without waiting for any governmental help, I responded to provide relief and rehabilitation to the cyclone affected areas and the subsequent flood victims. At that time, I ran five short-stay homes for the distressed women, girls, and children. In the aftermath of the super cyclone, thousands of women were rendered homeless. They were highly vulnerable to exploitation by unscrupulous elements. To provide temporary succour, interim schools with craft centres were opened up for such victims. My efforts in this respect included other measures, such as creating awareness, motivating the local people, and obtaining their active support.

Hence, as a part of the central government's scheme of short stay homes, appropriately named as Surakshya, for flood victims, these craft centres work as a transition shelter for destitute women before they find out a suitable and honourable way of living. This centre provides solace to the destitute during the period of agony and trauma. Besides providing temporary shelter, the centre also takes care to rehabilitate them by way of conciliation with their family members and in-laws. In worst cases, where their own family members remain indifferent, destitute women are provided with vocational training in various crafts and trades to enable them to earn a living for themselves.

My Message

Based on my sixty years' experience in social work and public life, I have for the younger generation a few messages. Sixty years is a long time, with regard to the changes that may occur in an individual's life, as well as in society. Many constitutional provisions relating to gender equality, especially for the development of women have been incorporated in the Constitution of India and a number of social laws have been enacted accordingly. Special provisions have been made to bring in more and more women into the fields of education, health, and employment. Reservations for women in the local government and in the services have been provided. Women are now considered as a commendable block of power in society, though a paradox still exists that a considerable majority of rural women are deprived of the socio-economic benefits of the constitutional and legal provisions made so far. The urban, literate, and advanced women are not only aware of their status and rights, but also cry for more equality, rights, and privileges.

However, rural women are still indifferent to the benefits of modernization and development. They are less aware of their rightful need for status of equality with the male folk in terms of freedom, rights, and privileges. These women are completely ignorant of the constitutional provisions relating to gender equality and the laws made for their progress and development. In this respect, reservation of seats for women in local self government is a timely and right step taken by the law makers. It is now the turn of rural women to prove their mettle in running their local self government. Instead of clamouring for reservation of seats in the parliament and state assemblies, rural women need to show up greater heights of achievement in the fields of education, income-generating jobs, crafts, vocations, and trades. Their ever-rising capability and success in competing in full measure with men will one day give them wider space for political power and participation without any legal reservation whatsoever.

Hence, in my view, reservation of seats in parliament or state assemblies is not the correct answer to the question of inequality and inferiority of women in Indian society. Reservation will only help a few women who are already in the forefront of public life, enjoying a prominent place in society. It will divide the Indian women folk into

two blocks—the elite and the common—and the gap between them would widen.

In my opinion, the elite women should continue with their dedicated work for changing the attitude and mindset of both male and female members of our society with respect to equality, rights, and dignity of women. This would gradually eradicate the prevailing bias of men towards women. In a positive sense, the work done by the women for the family or the society would get proper recognition; also, the participation of women in every field would be invited and rewarded. Status is not an aim to be begged for; it has to be acquired by women with an increasing awareness of their latent potential to contribute for the common good of society. The initial step towards creating a new awareness and outlook ought to begin with the education and care of the girl child.

The visible success achieved so far by self-help groups of rural women needs to be duly recognized and rewarded. I have utilized my life for the well-being of the respective target group whenever I had to monitor different situations in my capacity as commissioner, State Girl's Guide Association (1955–60); chairperson, State Social Welfare Advisory Board (1977–80); member, District Consumer Redressal Forum (undivided Puri district); chairperson, State Adoption Scrutiny Committee and State Council for Child Welfare (1991; continuing); working president, All Odisha Women's Council (1988; continuing), president, Nilachal Nari Seba Samity (1967–78; from 1981 continuing), secretary general of Country Women's Association of India, Calcutta (1968–76); vice president, Country Women's Association of India (1977–81); executive member, Association for Voluntary Agencies in Rural Development of India (1982–93), AVARD, New Delhi; Standing Committee and Executive Committee member of AIWC, New Delhi; President, AIWC, Puri Branch; and a host of other posts.

I emphasize social uplift through my writings on issues affecting women and children. Odia novels, such as *Adin Megha*, *Dur Digant*, *Jeevan Mahanisha*, *Ichhanaira Sua*, *Anabaran*, and short story anthologies like *Hisab Khata*, *Smruti Bismruti*, *Ekanta Apanar*, *Neela Anala*, and *Trutiya Biswa* are perfect testimonies of representing different aspects of social evils and their consequences in literacy genres that have received great commendations from readers and critics alike. I would like to continue with my social reformative work and my

struggle for transforming society which, in my view, has several miles to go before I fall asleep. The more women become educated and vocationally trained, the more they would aspire to become self reliant. Their potentiality and eagerness to contribute to the sum total of social good and happiness has to be constantly encouraged and recognized. This may acquire a long period of persistent effort, as the saying goes: 'Rome was not built in one day'.

Anu Aga

WOMEN IN INDIA

from shadows to excellence

In 2011 World Economic Forum's (WEF) ranking of countries in terms of Global Gender Gap Index, India ranked 114 among 134 nations, showing that women lagged behind men both in opportunities and access to resources. The WEF ranking assessed the distribution of resources and opportunities among men and women in the countries taken up for the study. We should not miss the irony of this ranking as it relates to an India that today heads the United Nations Security Council and which aspires to be a global powerhouse. At a time, when we are required to make optimum use of our resources, are we neglecting one half of our people who are at the heart of our so-called demographic advantage? Are we becoming enamoured of growth numbers and myopic vision of the real faces before us: a classic instance of missing the tree for the wood?

The Context of Women in Today's India

When we discuss the role of women in transforming society, we have to start from this harsh, realistic understanding of the state of women in India. The importance of women in effecting societal change is now widely recognized, but unless we consider the many deprivations and

injustice that Indian women have to cope with, and work relentlessly to change them, the subject will continue to do the seminar rounds year after year. Social transformation through women will happen when women are truly empowered, when they have equal access to health and education, jobs and leisure.

So it is necessary to take a quick look at the broad context of women in India, today. The kind of split that we see in the rich and poor India or the India and Bharat divide, is reflected in the state of Indian women too. While women professionals are contributing to the thriving new sectors of finance, IT, media, management, and research establishments. If you take an overall view, Indian women are disadvantaged in every way—in terms of literacy rates, labour participation, and earnings. In urban India, many fortunate women are finding new avenues of work fulfilment and have a greater awareness of their power to change and make things happen. They are rebelling against the stereotypes they have been conveniently made out to be—dutiful daughters, wives, and mothers. But the fact is, this represents a very small part of the big picture and millions of women are struggling for their survival and the basic necessities of life.

Let us look at some unpleasant realities that we tend to ignore in this age of glossy publications and self-congratulatory GDP figures. Maternal mortality in India is the second highest in the world and a large section of Indian women have little access to health and sanitation. Daily, thousands of women in many parts of India walk many miles to fetch water and firewood. They also have to attend to all the household chores—because that is not supposed to be man's work—and they end up with no time and energy for productive, satisfying work or enterprise. In cities, conditions are equally grim as thousands of women have to queue up for their water. Without toilets or hygienic living conditions, they lead humiliating and desperate lives. India probably has the world's largest group of unlettered women. Fifty per cent of India's school-going girls drop out at middle school for various reasons.

In fact, in globalizing India, we continue to be deeply hypocritical in our attitude to women. In public, we accept and respect women and brag about having a woman as our prime minister or a few women as chief ministers and judges. But privately, the large majority of women are subjugated and dominated. Let us remember that violence against women is not restricted to poor slums, but is widespread amongst the

rich and the educated. It is estimated that 60 per cent women face it in some form or the other. In many parts of India they are still denied access to education and are expected to remain in their homes and kitchens. They need permission from their men to occasionally visit their parents and relatives.

In a very basic sense, freedom in the real sense is not there when even their right to exist is denied. Foeticide is rampant in many parts of India. Even if a female child is lucky to be born, she grows up in a harsh India. The National Crime Record Bureau says that in 2004, in our country, a rape occurred every 29 minutes, one molestation every 15 minutes, and one crime was committed against women every 3 minutes.

Improving the Lives of Women

Developmental experience shows that in areas of health, literacy, self-employment schemes, and savings mobilization, women hold the key to social development. And investments in the education of women will make a true difference. When a woman becomes educated, the entire family gets benefitted, and yet compared to other developing countries like China, we are way behind—adult female literacy in China is almost 89 per cent, while in India it is about 46 per cent.

Educating women, by itself, is not enough. Larger numbers of them need to join our workforce. But in India, we find that the organized sector has not opened up sufficiently for women. The government's economic surveys have estimated that women constitute less than 20 per cent of the total organized employees in India. Recently, the Confederation of Indian Industry's (CII) survey of 149 member companies showed that on an average, medium and large companies had 6 per cent women on their rolls. At the managerial level, the junior level had 16 per cent women, middle level 4 per cent, senior level 4 per cent, and at seniormost levels almost nil.

To improve the situation of women so that they can live up to their potential and contribute to change in society, we need to act on several fronts. It is heartening to note that several of our states have woken up to the necessity of taking care of the girl child through better organized immunization programme and educational facilities. While such targeted efforts have to continue on a much more broader scale to lift the position of millions of girls and women of rural India,

parallel initiatives need to be undertaken in our towns, where thousands of unorganized women work and at the corporate offices where the proverbial glass ceiling is still very much a reality in many organizations.

Today, there are government agencies, non-government organizations (NGOs), and dedicated self-help groups working together in different parts of the country to improve the situation of women. Though some of these partnerships are success stories and have been reported in the media, much more needs to be done. First of all, we need to persuade the governments to implement the laws that it has made to improve the plight of women. Our laws, as they are written, must be some of the most enlightened from the point of view of women, but unfortunately they are hardly ever implemented or honoured. Firm and prompt implementation of laws would send a strong warning signal to the violators and also help in increasing awareness. We need to sensitize all institutions including the police force and judicial system that implements the law.

Many of us run our own enterprises and agencies. Do we treat women fairly, give them equal opportunities? Do we have an unwritten bias against them? Do we turn the blind eye when we get complaints about sexual harassment of women at the work place? It is time our companies realized that it makes good business sense to tap into the vast talent pool available in women employees. It can make the workplace more diverse, sensitive, and performance-oriented

Women as Entrepreneurs

It is not possible to employ everyone in industries or the organized sector. Entrepreneurship is one sure way to tap the potential of women, empower them with the earning capacity and authority. The success of Self-employed Women's Association (SEWA), the Lijjat cooperative and similar initiatives show us how once empowered, women can transform their own and their families' lives. Many studies have conclusively proved that once women begin to earn, they save more and also try to invest in the health and education of their families—critical factors for overall growth and well-being of the society.

The logic of the job market also demands the emergence of more and more entrepreneurs. Without formal skills or training, thousands of women have already turned into entrepreneurs—selling vegetables,

flowers, or fish, running home-based small shops and catering units—to support their families. Some of the more resourceful and educated women successfully manage a variety of establishments, such as restaurants, boutiques, coaching classes, and small-scale industrial units. When we look around, we can see that many such initiatives from our women barely manage to remain alive and yet some of them have taken roots and grown bearing testimony to the entrepreneurial skills of our women.

Established companies can offer valuable help in training to improve the knowledge and attitude of aspiring women entrepreneurs. Of course, such sessions cannot be conducted in isolation from aspects like credit availability and viable schemes. The CII, along with Bhartiya Yuva Shakti Trust (BYST), has taken a lead in helping create entrepreneurs from the underprivileged section of society.

Let us take a look at some of the qualities essential for a woman entrepreneur: a) the right education, b) effective networking and the ability to scan the environment for opportunities, c) support from the family, especially from the husband; d) encouragement to take risks and more importantly, support if she fails; and e) assertiveness, and of course, passion.

Women are at a disadvantage on each of these qualities. It often happens that the male child gets the benefits of education. A bright young girl from a poor family is kept home to take care of household chores and her young siblings. Even if a woman is educated and begins to work, she is expected to share the entire burden of looking after her home. Women who venture out often have to battle it out without supportive home environments.

A Question of Mindset and Access to Resources

Our social and cultural attitudes pull down women. However, it is the mindsets and self-images of women that continue to stand between them and a satisfying life, rich with achievement and self-realization. Most women grow up in homes where they are indoctrinated about the limitations and frailties of women, about the accepted place for women in the social order. Growing up, a girl child is bombarded with all the messages that encourage her affiliative needs and not her achievement needs—making her a dutiful wife, an obedient daughter-in-law, and a caring mother. With such powerful messages day in and

day out, it is natural that most women would not dare to take risks. Nowhere is she encouraged to think—leave alone thinking of work as a rightful career option. Instead of possibilities, she is surrounded by limitations.

It is important for millions of our women to face the limiting self-images that they have internalized over the centuries. Real women empowerment will happen when our women overcome these mindsets imposed by a patriarchal social order. Entrepreneurship is all about enterprise, which is about believing in possibilities and not getting fixated by limitations

There are no easy solutions and the battle has to be fought on many fronts—at home, in educational institutions, religious bodies, and ultimately, in the minds of men and women. We all have a responsibility in promoting and supporting the cause of women welfare as it is a colossal waste for the country not to harness the inherent potential and creativity of one half of its population.

Corporates and apex bodies like the CII can go a long way by helping to conduct design training programmes and interactive sessions to upgrade the skills, expertise, and attitudes of aspiring women entrepreneurs. While expanding their supply chains, corporates can bring in more diversity by increasing direct participation of qualified women or by persuading their supplier-partners to improve the representation of women.

A major problem faced by many women entrepreneurs is the lack of access to financial resources and working capital, due to their inability to provide tangible security. Following the Bangladesh example, microfinance schemes are seen to offer solutions. While such schemes need to be jointly worked out by the government and financial institutions, business associates and its member organizations can play a vital role in imparting training and working out proper project feasibility reports.

Feminine Qualities and the Development Process

As our industrial and service sectors develop and expand, and as more women join the workforce, we should aim to correct the imbalances that has been created by a male-dominated development model. Today, we are discussing the role of women against the backdrop of the global

crisis of financial and economic institutions in the developed world. The meltdown of powerful institutions and mounting debt have left many of the wealthiest and powerful countries in turmoil. More important, these economies are facing a complete breakdown of trust. In a globalized world, the ripple effect of these developments is felt by developing and poor countries around the world. We are facing the huge destructive effects of prevalent development models that while generating wealth have also given us the legacy of environment destruction, unbridled greed of a powerful minority, huge disparities in wealth, military misadventures and wars for strategic minerals and other resources, resulting in unending misery and deprivation for millions.

The values that have shaped our development and business initiatives have been those of men. Power and management are handled in most situations by men: at homes, at the workplace, at boardrooms. Certainly, business so far has been a male preserve, a bastion of men. There are illustrious exceptions of women at the top and entrepreneurs among women. But they remain exceptions. This is true of India as well as developed nations, again barring a few glorious exceptions like the Scandinavian countries.

When business and policy making has largely remained a man's domain, it only proves that we have not been tapping the energy and creativity of one half of the world's population. It is like a powerful machine working at half its capacity, or the human brain functioning with one of its hemispheres switched off. It is clear that we need more women at our workplaces, at the top most decision-making levels. When women are excelling in all walks of life, why should they be excluded from boardrooms and management councils of organizations? The old boy networks need to be opened up and democratized to bring in more women. When it happens, and the sooner the better, it cannot be a magnanimous or charitable act, but it will be a true reflection of the capabilities of women, and it is essential for correcting the imbalances that have led to disastrous consequences.

Pinky Anand

A JOURNEY CALLED LIFE

Life is a journey and if I see stalwarts who are miles ahead, I am not sure that I consider myself having made it. There can never be a single indicator or *raison d'être* of success. However, in my own way, I have strived to contribute to my society, my nation, and my party, which is true success for me.

When I see (and have been seeing) women struggle as daughters and daughters in-laws, trying to achieve even the basic modicum of independence and free thinking, and this is true for all fields, I am reminded of the motto 'freedom to choose and the right to excel'. Life gave me these freedoms, and I chose this motto for success and it is rather apt. I was able to make choices; I was able to decide; I was able to do; I was encouraged to do. And that motivated me to begin my journey.

My parents got married when they were fifteen and seventeen, and had missed several opportunities. They however wanted us, their daughters, to have the best of academics, opportunity, and encouragement. I chose my paths; sometimes consciously, at times accidentally, occasionally fortuitously; and these paths got me where I am today.

I could attribute my life's story to three factors: confidence, challenges, and determination. I thrive on challenges and am determined to reach goals set either by me or for me. I have a fair

amount of confidence in my abilities. These traits helped me climb from level to level; in academics, sports, extracurricular, and co-curricular activities; from achieving academic excellence till achieving the penultimate—Harvard Law School, USA and that too as a recipient of the famous Inlaks Scholarship. I remember telling my father when I applied to the colleges in the USA that I would go only if I got a scholarship. I did not want to spend my family's hard-earned money.

The Early Years

I studied in Presentation Convent Senior Secondary School from kindergarten until I passed out in 1974. An outstanding school of old Delhi, it inculcated in me the highest standards of academics, discipline, and integrity, and provided me reasonable exposure to co-curricular and extracurricular activities. Thereafter I did my graduation in economics from Lady Shri Ram College for Women, New Delhi. Though the course I undertook to pursue is considered the toughest, I ensured that I participated in each and every avenue provided by the college and went on to become the best all rounder.

University of Delhi provided me with the ideal platform, to get into mainstream directly. Furthermore, it gave me the necessary exposure and I made the most of it. I was fortuitously involved with a spectrum of activities during my college life. I contested elections for Delhi University Students Union (DUSU). This was during the period Akhil Bhartiya Vidyarthi Parishad (ABVP) was regrouping and had decided not to contest elections. Then Jharkhand Vikas Morcha (JVM) came up with like-minded people and I was chosen as a part of their headhunting operation. I won both years with a thumping majority, first as joint secretary and then as the first woman secretary.

I might have continued my foray in youth politics but I went to Harvard. The training I had received during my brief association with the DUSU was gruelling, demanding, and challenging. There was so much to do and learn, think, analyse, and act; motivate and coordinate large sections; reconcile and work with different sections and different mindsets. I grew as a 'person'—as a social animal and as a leader. Even after several years, I meet admirers, voters, friends from all occupations, who have a kind word to say about my contribution as a part of the DUSU. Recently, when I contested the Supreme Court Bar

Association elections, I was happy to learn that I had made longstanding relationships then, which kept me in good stead now. These are the treasures, which I have accumulated during my sojourns in life. 'Mein akele hi chala tha manzil ki talaash mein, log miltey gaye, kaarwaan banta chala.'

Merit by itself has taken me a long way, but merit alone is not enough; fate and fortune have also been kind to me. Shakespeare very wisely had said, 'Be not afraid of greatness: some are born great, some achieve greatness, and some have greatness thrust upon them.' Maybe I had greatness thrust upon me.

Today, I am a member of the national executive of the Bharatiya Janata Party (BJP). Earlier, I worked with Mahila Morcha and Yuva Morcha. From 2007–10, I headed the BJP national legal cell as the first national woman convener. I am grateful to the BJP and former BJP president, Rajnath Singh, for granting me this fascinating opportunity to work with my team mates at the all India level. I got a chance to learn a great deal about different parts of India; understand issues affecting people at different levels; create state cells; and mobilize people to form a bigger family.)

My Experience in the Legal Profession

Legal practice and that too litigation, starting from nowhere, is not easy. Not many made it and it was particularly not easy for women. However, I must admit that most of the time, I did not find any major impediment or gender bias that could create any visible obstacle in my way. I got several opportunities and was able to deliver. I can turn back and say that I have contributed to constitutional history through the memorable victory in Arjun Munda's case leading to his becoming chief minister, or upholding of fundamental right of speech and expression in Khushboo's case, or the delimitation case, or the landmark Clemenceau ship case.

When I took to the legal profession, there were not many women lawyers and definitely not more than a handful that were well known in their own right. Normally, during those days, women remained as juniors or associates with other lawyers and rarely stood on their own. I think there is no magic wand to break glass ceilings. It takes persistent determination to challenge established norms; I took the plunge without

much thought. In my case, a track record of excellence in performance helped me to rise. One of the major challenges towards breaking glass ceiling is getting an opportunity. I got several opportunities to perform, some friends recommended a few companies, which gave me nationwide opportunity and experience. I got some challenging cases through my work with volunteer organizations and then it went on.

One of the most interesting cases which I reminiscence about was related to the sealed pages of *India Wins Freedom*. Maulana Azad wrote this book during the Partition. However, it was his wish that some pages should remain sealed for thirty years after Independence as the time was not right for their release. Injunction was granted by high courts and district courts against the release of the papers. I appeared for Humayun Kabir's daughter Leila Kabir and argued for the right to knowledge of the people and on the aspect of co-authorship of Humayun Kabir. My contentions were upheld and the stays were vacated. Finally, the pages saw the light of the day.

I got an opportunity to fight against atrocities against woman, as well as environmental degradation and for constitutional rights of freedom of speech and judicial review. Fortunately, for me, I was able to win the trust of a large variety of groups. I defended the Union of India as senior counsel; the railways as senior counsel; the states of Jharkhand, Maharashtra, and Himachal Pradesh as senior standing counsel.

Though gender discrimination at work is a widely debated topic, I have not really faced major problems especially because of my independent streak, diverse experiences, and strong educational credentials. Similarly, I have never addressed nor felt the need to address male colleagues any differently. I have always treated all my colleagues at par, and except a few lawyers who might intimidate me to some extent, my focus has always been on the briefing and my preparation. I do not think it matters to me who is opposing me, or whether he/she is a male or female. On a lighter note, in fact, sometimes it is worse to contest with women colleagues and argue a matter because I have noticed that when there are women lawyers on both sides, courts feel that the lawyers are fighting with each other rather than presenting their case.

Litigation has no façade. The success of a lawyer is determined only by the number of cases he/she wins. Any lawyer who wins a case feels a sense of accomplishment. When a lawyer comes out of a court disgruntled or unhappy, you know that he or she has lost a case. Happiness and

disappointment cannot be gender determinative. I am passionate about every case I undertake and definitely have very strong feelings on the outcome of any matter.

I shall be honest to admit that my life has so much more meaning and my identity has several dimensions because of the work and activities I engage in beyond cases. It gives me great joy when people call me a 'human rights activist', or a 'crusader' or 'thinker'. There are many issues and associations that I work with closely, one of which is the Research Foundation for Science, Technology, and Ecology, Delhi Study Group, Navdanya.

Being an Active Citizen

My feelings towards my country and the desire to be a part of the transition that has set in our nation has been the driving force in my life. I returned to India after the completion of my LLM at Harvard mainly because of my family and nationalist feelings. I could never accept the idea of being a second-grade citizen in any other country. I have represented our country at international conferences, including the Fifth General Assembly International Conference of Asian Political Parties (ICAPP) held at Kazakhstan in September 2009, where I have also been vice chairman of the session titled 'Women and Politics'. I was a part of the official Indian delegation to Women's Forum Global Meeting at Deauville, France in 2008 and a delegate at Terra Madre Conference by Slow Food of Carlo Pettrini in Turin, Italy in October 2008 on 'Food Security, Food Crisis, Climate Changes, and GMOs'. I have also been fellow of Session 433, titled 'Women, Political Power and Next Generation Leadership', at the Salzburg Seminar in Austria, 2006; member of the National Delegation to China in 2005; represented India at the European Union in 2003; and represented India as the Young Political Leader at France in 2003.

This does not mean that life has not given me an uneven deal at times. With achievements, there were setbacks; some struggles. Suffice it to say, you cannot overcome all struggles, but some I did with verve and came out flying; some issues I have learnt to live with.

It would be unfair if I did not mention the role of media and journalism in my success. I have been active in public speaking and have the distinction of being bilingual, speaking fluently both in

English and Hindi. The media is kind to me. I have been criticized for being very outspoken and forthright in my opinions. However, I find, with pleasure, that this trait is identified with me, as my highlight. The feedback that one receives helps one introspect and set the course straight for the future.

My family members including my mother, sister, my husband, and in-laws take great pleasure in my achievements and encourage me no end. My friend Geeta Luthra has played a major role in my success story. My friends are very proud of my achievements. My daughter has mixed responses. She is a teenager and feels that I keep working. When I am pushing her to study, she says, 'I can't be like you working 24/7'. However, I think she is proud of me though she would not show it. There is some resentment when I am busy and can't give her time. I keep juggling and trying to be good in all my avatars.

Now that I stand at the threshold of life, I look ahead—there are miles to go; I look back—I have some sense of satisfaction. I might have gone further if I had the benefit of a golden spoon. However, life is full of struggles and struggles make a person what he/she is. It is a hard life, but I enjoy it. This is what makes the journey called life beautiful and I love and live each moment.

Mahtab S. Bamji

LEAP FROM THE SCIENCE OF BIOCHEMISTRY AND NUTRITION TO SOCIETAL SCIENCE

Several years before my retirement from the National Institute of Nutrition (NIN), Hyderabad, I had the opportunity to visit the Comprehensive Rural Health Project (CRHP) of Raj and Mabel Arole in Jamkhed, Maharashtra, with members of the Medico Friends Circle. The Aroles have pioneered the training of even illiterate rural women as effective health workers at the grass-root level. This was a turning point in my life when I took the decision to move from laboratory science to the rough and tumble of rural development. My decision could be implemented only after my retirement in 1994. Though at the NIN my work was mainly in the area of nutritional biochemistry, I did get some opportunity to be associated with clinical and field research since nutrition research needs to be multidisciplinary. Explanations for etiopathogenesis of nutritional and health problems observed in clinical or field studies need to come from basic research in biochemistry and cellular and molecular biology.

Entering the Fascinating World of Biochemistry

The choice to study biology, chemistry, and biochemistry instead of medicine (a career chosen by my twin sister) was a deliberate one

as I loved science, particularly physics and biology, since my school days in Mumbai. After graduating with chemistry and botany from Bombay University, I enrolled for postgraduation in biochemistry. While chemistry was not my passion or forte, the very first class in biochemistry opened a fascinating world before me. Even in those days, there were women students to enrol in postgraduation in biochemistry.

Women, generally, have always opted for biological sciences. Well-planned studies have shown that the notion that women do not have aptitude for mathematical, physical, and engineering sciences is incorrect. High-school girls in India have interest and aptitude for mathematical and physical sciences, and are not intimidated by these subjects, as often thought. Their preference for biological sciences and medicine, later, is due to societal mindset rather than gender difference in aptitude.

Another turning point in my life came when V. Giri, head of the department of biochemistry, Indian Institute of Science (IISc), Bangalore, who had been the examiner for MSc in 1957, the year I qualified, invited me to come to the IISc, Bangalore to pursue my doctorate. I was naturally delighted and excited. My mother and an old aunt were apprehensive, but finally, I was granted permission. However, my father accompanied me to Bangalore. To me that seemed reasonable and assuring since in those days young girls were not as bold as they are today.

Professor Giri assigned me to Homi Cama, a well-known scientist and a good man, who believed in working in a pleasing environment. He suggested that I work on the problem of vitamin A₂, chemistry, and metabolism along with P.R. Sundaresan (Sundar). My friendship with Sundar and his family in the USA has lasted over the years. Purifying and crystallizing vitamin A₂ was a challenging task since vitamin A₂ is a very unstable compound and there were moments of great frustration and anxiety. Long hours of work had to be put in. Finally, things worked out and our research got completed. In those days, though there was no shortage of power and water, supply of equipment were scarce. There was only one Beckman DU spectrophotometer, the lifeline for biochemistry research, which was shared between the departments of biochemistry and pharmacology, and it had to be booked ahead of time. Sometime bookings were available in the night.

After Professor Giri passed away, P.S. Sharma, from Madras (Chennai), became the head of the department. The system of weekly Journal Clubs

was introduced. All graduate students had to come prepared with the research paper they were working on and any student could be called upon to present the subject, using a black board and chalk. It was an interesting experience in which at the first call, I discovered my ability to speak. Professor Sharma's compliment with a flicker of smile on his otherwise stern demeanour made my day. The ability to articulate is very important in science. Unfortunately, many timid, inexperienced Indian students lack this ability and do not get an opportunity to be in the limelight.

The obvious course of action for me after completing my doctorate was to go to the USA for post-doctoral experience. I had the great opportunity to work with Norman Krinsky, an authority on carotenoids at the Tufts University School of Medicine, Boston and with Andre Jagendorf, renowned in the field of photosynthesis, at Johns Hopkins University, Baltimore. My experience in the USA for three and a half years was enjoyable and rewarding. In 1962, at Tufts University School of Medicine, I was the only woman, between the departments of biochemistry, pharmacology, and physiology, pursuing post-doctorate. Edith Wilson (later Miles) came the following year and my friendship with her and her husband Todd Miles has lasted over the years. In those days, women in 'saree' were a rare species, and when I was asked to take lectures for medical students, I was confident, but the students were quite apprehensive. Their main concern was if I would speak English in an accent which they would be able to follow. Indian accent in English tends to be varied and unfamiliar to American students. Their worries were dispelled after my first lecture, and later, I became good friends with some medical students. Unlike today, there were hardly any girls studying medicine then, even in the USA.

In early 1960s, C.V. Raman developed a fascination for studying the role of carotenoid pigments in vision. This provided me with an opportunity to interact with the great man. Though the theory that he proposed could not be proved, discussing science with a man like him was a wonderful experience.

Roping in Women Scholars for Research Work

Unlike other departments at IISc, Bangalore biology departments which included biochemistry, pharmacology, and fermentation

technology (today there are many) had few women students. However, I do not find my former colleagues (except one or two) in good academic positions or as fellows of science academies. Reasons are not far to see. Some have moved to other countries and some have got married and their career in science has become secondary. A few have built professional careers, but are not as visible as their male counterparts. The situation persists, but remedial measures for women to return to a career in science after a break are being tried by the Department of Science and Technology (DST) and Department of Biotechnology (DBT) Government of India.

Re-entry fellowships have been introduced. There is demand for such fellowships, but after availing them for a few years, there might be placement problems. Readers may find two recent reports: (a) 'Science career for Indian women: An Examination of Indian Women's Access to and Retention in Scientific Careers' by the Indian National Science Academy (INSA) in 2004 and (b) 'Evaluating and Enhancing Women's Participation in Scientific and Technological Research: the Indian Initiatives' by the National Task Force for Women in Science, Government of India, DST in 2010, interesting. These reports are on the websites of INSA (www.insa.ac.in) and at www.indianwomenscientists.in, respectively. The latter is an interactive portal, which women scientists should use to register their names with bio data.

Challenge in Nutrition Research

In 1965, on Professor Sharma's suggestion, I wrote to C. Gopalan, then director of the National Institute of Nutrition (NIN), Hyderabad, for a job. Gopalan responded promptly and positively and asked me to appear for an interview. I could not, but was selected in absentia and thus started my long innings of twenty-nine years at the NIN. This was yet another watershed in my career and a turning point. The NIN was then and still continues to be a very well-run institution. It has three working ends. The main laboratory, clinical units in two local hospitals, and a field unit devoted to community nutrition work in villages. Varied scientific expertise and access to instruments for biochemical work, clinical material, pathological laboratory, animal facility, and opportunities for field/community studies at the NIN offer a unique opportunity to conduct human nutrition research.

Though nutrition is an old science and the science of biochemistry began as nutritional biochemistry, vast gaps exist in our understanding of: the mechanism of absorption and action of micronutrients at biochemical, cellular, and molecular levels; tests for early detection of deficiency; biochemical and molecular bases of the pathology of nutrient deficiencies; nutrient requirements for preventing deficiency disease versus positive health; functional consequences of marginal malnutrition; interaction within nutrients and between nutrients and other chemical and biological agents; and many others. Discovery of health-promoting phytochemicals (nutraceuticals), other than established nutrients, has opened a vast field of functional foods. Impact of nutrition on foetal programming and long-term health consequences is yet another fertile area for research. To solve these problems at the basic level, concerted effort of medical professionals, biochemists, physiologists, cellular and molecular biologists, and agriculture scientists is required.

At the NIN, I had the right atmosphere and colleagues to foray into some of these problems. Few areas where my students, colleagues, and I could contribute are: (a) biochemical tests for early detection of B-vitamin deficiency and using them for evaluating vitamin requirement of Indians (The glutathione reductase test developed by us is internationally used); (b) biochemical/molecular basis of skin pathology in B-vitamin deficiency; (c) biochemical basis of some of the clinical side effects of contraceptive steroids, particularly increased vitamin requirement and altered glucose tolerance; (d) biochemical basis of altered vitamin B2 metabolism in respiratory infections; (e) demonstration of vitamin-like properties of carnitine, synthesized from essential amino acid lysine. A team work between biochemists, clinicians, and laboratory animal specialists is needed to address these problems.

Some of the vitamin depletion–repletion experiments that I did on human volunteers, including myself, to derive minimum requirement of vitamins for humans, may not pass the ethics committees of present times. But then we had taken care to ensure safety and none of us suffered. C. Gopalan (president, Nutrition Foundation of India [NFI], now in his nineties) a brilliant man, gave us full freedom to work, once he was convinced about the problem. He was generous with ideas, but never put his name on a publication unless he had initiated it—an example that many seniors need to emulate.

Women-friendly Infrastructure in Institutions

In those days, the NIN did not have a ladies' hostel and many of my students used to stay with me. People used to tease me that I run a gurukul. This shortcoming has been rectified and now the NIN has a comfortable hostel for women. However, even today, the problem of providing housing for female students and the faculty is a serious one. Research in science does not have a fixed or regular time frame. Some experiments continued till late in the evening or even night, and the safety of women researchers is an issue that needs to be addressed if more women have to be motivated to take up a career in science. Many institutions do not even have proper toilets and restrooms for women. Lack of such basic facilities in colleges and institutions keep many girls from coming to towns and cities for education. Availability of a good crèche and even day-care centres for the elderly, in universities and institutions, will help and encourage women (who have to bear the double burden of home and professional work) to pursue a career in research. In recent years, the situation has changed, and at least in some universities and government institutions, women-friendly infrastructure has been mandated and funds provided for their creation.

Presence of Women in the Study and Practice of Nutrition

Nutrition research is a field pursued by a high percentage of women. At the NIN, there were many women in the faculty, and in my view, there had been no instance of gender bias. However, it is surprising that an institution of over ninety years' standing (since 1918) has had only two women directors. Again, at the Nutrition Society of India (NSI), over 80 per cent of its membership belongs to women, majority of whom come from the fraternity pursuing home science. However, in forty-two years of its existence, there have been only two women presidents at the NSI. In my opinion, such occurrences cannot be attributed to deliberate gender prejudice. In general, there is paucity of nutrition scientists, particularly women, who have attained positions of eminence.

From Lab to Land

As mentioned earlier, on retirement from the NIN, instead of continuing with laboratory work, I decided to join my friend Devyani Dangoria

and her establishment, Dangoria Charitable Trust (DCT), as Indian Council of Medical Research (ICMR) emeritus scientist. Devyani is a gynaecologist with deep societal commitment. The trust runs a hospital for women and children, and a home for the aged in Narsapur village, Medak district, Andhra Pradesh. Nutrition is not a stand-alone subject. For nutrition security, certain factors need to converge—awareness and access to age-appropriate balanced diet at affordable cost; healthy environment, including clean drinking water and access to health care. My most helpful assistant, P.V.V.S. Murty (a social scientist) and I have tried to evolve models for each of these issues, while working in some villages of Medak district. Funding for our work has primarily come from DST and DBT, Government of India, through their societal programmes.

Our model of Health and Nutrition Entrepreneur and Mobilizer has had marked positive impact on prenatal, neonatal, and infant mortality, and some effect on child nutrition and birth weight. For improving food security, our effort has been to promote diversification from mono cropping with paddy and sugar cane to mixed farming using green methods, including horticulture, growing legumes and millets, and crop livestock. This model enhances household access to foods rich in micronutrients like vitamins and minerals (Indian diets being qualitatively deficient in micronutrients); reduces demand for water; and emphasizes on the use of organic fertilizers and pesticides, which would not cause any harm to the environment. However, we have not ventured totally into organic farming and advise on the use of chemical fertilizers after testing the soil.

Our focus has been on women and adolescent girls, though a family approach is used for creating awareness. In the villages of Medak district, where we work, school attendance of girls has improved remarkably in recent years and there have been not many school dropouts amongst girls. Adolescent girls are enthusiastic learners and good agents of change. In an initial Knowledge Attitude Practice survey on issues of health, nutrition, environment, gender, and so on, conducted before chalking out science and skill-based interventions (a National Institute of Public Cooperation and Child Development [NIPCCID]-supported project), we found that though the dowry system was universally resented, the villages were helpless in bringing an end to the practice. The reason lay in the internalization and acceptance of gender roles.

If India has to develop it needs to do much more for health, nutrition, education, and empowerment of women, starting with the girl child and adolescent girls. A rural food processing cum training centre has been established, with financial support from the ministry of food processing industries (besides DST and DBT) in collaboration with Central Food Technological Research Institute (CRFTI), Mysore. The objectives of this centre are: a) generate skill-based employment for women; b) prevent wastage of farm produce during glut season, through value addition; and c) enhance nutrition security by developing low-cost nutritious foods. Setting up such a facility in a rural area is not without difficulties. Frequent power failure, paucity of trained artisans to ensure maintenance of equipment and infrastructure, access to ingredients other than farm produce needed for processing, inadequate work culture (poor time discipline, absenteeism) and spirit of entrepreneurship among rural women, and transportation and marketing are problems that need to be dealt with.

Women's Nutrition for National Development: the Asian Enigma

South Asia, particularly India, has the dubious distinction of having the highest incidence of malnutrition in the world, higher than the Sub-Saharan Africa, which in many ways is poorer and less developed than India. In an analysis done by Ramalingaswamy, Johnson, and Rhodes, way back in 1996 (*The Progress of Nations, Commentary*, 11–17) the authors compared the two regions to find out why South Asia fares badly. The finger rested on women's health and well-being. Africa is no haven for women, but India's neglect of women is more. Every third child in India, even today, is born with low birth weight (LBW), compared to half that number in Africa. Malnourished women give birth to LBW babies who grow up as weaker individuals, susceptible to morbidity and mortality. Studies have now shown that individuals who have suffered from malnutrition in womb and are born with LBW have more body fat than muscle and have greater susceptibility to chronic diseases like hypertension, cardiovascular diseases (CVD), diabetes, and so on, in later life, particularly if there is change towards more risky lifestyles due to affluence. The theory of foetal origins of adult diseases is gaining acceptance and can to some extent explain the

growing incidence of chronic diseases like diabetes and CVD in India. Malnutrition and neglect of women not only increases susceptibility to infections due to compromised immunity, but also to adult-onset chronic diseases.

Malnutrition is the worst form of non-communicable disease. While both men and women suffer, the incidence of micronutrient deficiencies like iron-deficiency anaemia and vitamin deficiencies is much higher in women, particularly during pregnancy. Anaemia is a silentcrippler and killer. There are multiple adverse effects of maternal under-nutrition. Nutrition needs to be placed high on the agenda of national development and till the time such goals are realized, India would be building castles on foundation of straw. The hype about the economic growth of India would then remain superficial. If a beginning has to be made, it should be with female health, nutrition, education, and empowerment. This requires committed leadership and action; not mere lip-service.

Padma Bandopadhyay

ROLE OF WOMEN IN TRANSFORMING SOCIETY

India is a unique country with cultural, social, and economic diversities. Notwithstanding the multifarious progress made since Independence to face challenges like poverty and unemployment, obstacles, such as rural-urban divide, gender bias, and so on, tend to retard her growth. In India, though women were held in high esteem in ancient times, evils like lack of education, child marriage, dowry system, and female foeticide marred their former status in society. Many social reformers had realized the active role that women play in transforming society. Examples of such inspiring personalities have been Razia Sultana (1205–1240), Begum of Bhopal, Kittur Rani Chennamma (1778–1829), Rani Durgawati (1524–1564), Rani Lakshmi Bai (1835–1858), Mother Teresa (1910–1997), and so on. In modern times too, few women have stormed into the male bastion and have taken up roles that, until recent times, were enacted by men. However, it goes without saying that much needs to be done, and that we need to focus on delivering the benefits of scientific and technological knowledge to women, particularly the underprivileged ones.

Zeal to Achieve

I shall recall a few incidents from my own experience, which had left an impact on the small social circles around me. I was admitted directly to

the fifth standard. I had to look after all household jobs as my mother was in hospital. However, I pursued my studies diligently and excelled. My consistent academic results proved that I was an achiever. My cousins and family friends, who were not educated, were motivated to educate their daughters. Many of them sent their children abroad for higher studies too. Emulating my example, parents used to bring their children for coaching. They had realized that education needed the wholehearted support of the family.

When I had come to Delhi from Chennai, the only language I knew was Tamil. This was quite a handicap. The Hindi teacher, the only non-Tamil-speaking teacher in school, could not understand my difficulty in pronouncing Hindi. I kept up my efforts, with the strong belief that one must not stop and never give up. My efforts inspired many non-Hindi-speaking Tamilian girl students to strive hard and learn Hindi. Even till date, I am teaching English and Hindi to the underprivileged women and children for their development.

I was perhaps the only student in my school to have changed my stream from humanities to science. My cherished dream was to become a doctor. I was determined to study pre-medical. I used to share my ideas with my close friends. My father knocked the doors of all colleges at Delhi. Finally, to my good luck, I was admitted to pre-medical as an exceptional case. What followed was like my worst nightmare. I was completely unfamiliar with the symbols of chemistry, the laws and numerical in physics, and the free-hand drawings of biology. Of the three, I found chemistry to be the most difficult, as I did not know even the basics. In chemistry practical class, I would break flasks and crack crucibles. I managed to make several holes in my apron due to mishandling of acidic solutions and at times even burnt sarees too. The teacher would ask me to leave the class every day. I could not explain my predicament because I could not communicate in English or Hindi. After about six months, one of the professors enquired about my problem. I could no longer hold back my frustration and cried out. He understood my helplessness as I blurted out the subjects I had studied for my board examination—English, economics, Tamil, Sanskrit, and mathematics and kept crying. He was surprised and shocked. Perhaps he felt sorry for me, or saw some potential in me, as he decided to counsel me. He began to teach me chemistry in his spare time and I excelled in the subject. As my guru, he had never asked for any monetary

compensation. In my opinion, one needs to work hard in life but each one of us need to have a pole star to steer our lives in the right direction. In my case, my chemistry professor was my lodestar.

Call of the Nation

At that time, the Indo-China war had come to a stalemate. There was a tremendous upsurge of patriotic feelings amongst youngsters. I was no exception. Coincidentally, the Armed Forces Medical College came to be established at this time. This was an excellent opportunity for me to serve my nation as a doctor. Our college had strived and achieved success in transforming us into well-educated, self-confident, intelligent, and competent medical officers of the Indian Armed Forces. Many of us in turn, dedicated ourselves to some service towards humanity, to the extent possible.

The blue uniform and the aerobatic skills the soldiers practised attracted me and I joined the Indian Air Force (IAF) as a flying officer. I was the first permanent commissioned lady air force officer. I married flying officer Satinath Bandopadhyay, a handsome, intelligent, hardworking, and humane young officer, soon after joining the IAF. We had similar ideas to serve the society and continued to do so in our ambits.

Throughout my career, I treated many underprivileged patients on my own. I would like to mention a few such instances. I treated premature babies with a local self-improvized incubator in an operational station when a multispecialty hospital refused to admit them. Health camps were held in the interiors of rural areas to treat and educate people. Medical supports were also provided to non-entitled people in high-altitude areas. The people were made aware of the common high-altitude problems. While in the icy Arctic, health camps were conducted and emergencies were handled. During the tsunami in the Andamans, and other natural calamities, medical relief operations were conducted.

My husband and I were the first couple to be awarded with the President's Vishist Seva Medal in 1973, together, in the same investiture ceremony. We were the juniormost officers to achieve this unparalleled success. The wide media coverage resulted in highlighting our later achievements, which would have inspired many personnel.

I was promoted as the first lady air marshal and appointed as director general of medical services. During my service career, spanning nearly

four decades, I specialized in the field of aerospace medicine. I could contribute to the flying fitness of aircrew, both military and civil. At that time, only male medical officers specialized in this field. It involved flying with the aircrew when required, designing protective ensembles, and carrying out investigations in case of accidents. Today, there are many ladies who have taken up this specialty.

Owing to the wide media coverage, many youngsters approached me for advice. I will recall one such case. A young intelligent girl from Maharashtra wrote a letter to me in Marathi that she had topped the Matric board, the school leaving examination, and had secured scholarship for further studies. She wrote that her father was not willing to send her to college as she had three more sisters and a younger brother. I wrote a letter in Hindi to her father explaining how important it is to educate daughters. Also, I wrote to the college principal asking him/her to explain the matter to the father in their language. The college authorities conveyed that the students were communicated about this incidence. Today, this young lady is a computer engineer working as an executive at Delhi.

Breaking the Glass Ceiling

Initially, it was a difficult task to break the glass ceiling. I tried my best to take an active part in the lifestyle of pilots, patients, and personnel in general. In 1975, I was the first lady aviation medical specialist. The pilots found it difficult to accept me as one of them. They used to skip the real issues and discuss about their wife, children's problems, and so on, as I was a lady doctor. In spite of my persistent probing, they would not open up with their aero medical issues, as I was entering into a male domain. I realized that I have to become one of them. I started attending all pilot briefings, discussing issues informally. I started flying with them to understand their problems in the air. It took me about two years to be a part of the gang. After this, they opened up and communicated the real issues as a colleague. My persistent hard work finally paid off.

Male colleagues

Most of the colleagues in the IAF were very helpful to me when I was a junior officer. However, they found it convenient to ask me for carrying

out all their extra duties. I had completed most of the prestigious courses. At such stages, I could feel the undercurrents to pull me down. Thereafter, at each senior level, my hard work and efficient discharge of responsibility paid up rich dividends. All my colleagues appreciated my achievements and encouraged me to perform better. Numerous recognitions followed.

War situations

I had joined the IAF after the 1962 and 1965 operations, with the aim to look after the Armed Forces' personnel who stake their life to defend their motherland. I therefore, felt very glad to get an opportunity to accomplish my goal. During the 1971 operations, there were mass casualties from airfields and surrounding military stations. I assisted the surgical team to save the lives and limbs of many war casualties, who were later transferred to multispecialty/base hospitals. This boosted the morale of the patients. During their stay at Halwara, they were grateful to the care and cure services. Carrying out surgical operations in a makeshift underground operation theatre was a first ever and most memorable experience for me. I earned rich recognitions for my role in war situations.

Reactions of family members and friends on my achievement

My close family members took immense pride in my achievements. They conveyed that my achievement was legendary for them. My husband always motivated and supported me in attaining still higher levels of success. My friends came to know about my achievements through TV and the media and they heartily congratulated me. Some of them were even surprised.

Message for the Global Mass

I have gone around many countries in the world where I have interacted actively with internationally-accredited aerospace medicine specialists. I tried and still try to implement what I learnt. These include social services like free treatment to the poor and needy, teaching English to the underprivileged, organizing preventive interactive sessions on diabetes,

hypertension, and so on, and spreading awareness on cleanliness at the village level. With all my duties, I did not lose my focus on bringing up the children to the best of my ability. I feel a parent, especially a mother, should spend a lot of her time with the children to shape them to be a good human being.

As one lamp lights another, each successful woman must help others who are not that fortunate. Let us all share what God has bestowed on us with others to make the world around us a better place to live. 'Never give up, try and try again, and do not stop till you reach your goal.' 'Prayatnam Vidheya, Prayatnam Vidheya', Jai Hind.

Manju Bansal

TWISTS AND TURNS ON THE PATH TO DNA

The choices I have made and experiences undergone are probably a bit different from those of most Indian girls. I began my education at a small Hindi medium school at Rohtak in Haryana. Towards the end of the third standard, my family moved down south to Hyderabad, where there was only one small Hindi-medium school. So my father took me along to explore some English-medium ones. The challenge of suddenly studying various subjects in English, as well as picking up spoken English skills that are acceptable at a convent school was quite daunting. Strangely enough, my father left it to me to choose the school I wished to join. I bravely chose the more difficult option and was able to cope, in fact, did well enough to merit a 'double promotion', that is, skip a class and jump to the next higher one, within a few months.

The next seven years were very exciting since I had to keep shuttling between Hyderabad and Dehradun, while my father kept going to England for his postgraduate specialization, and subsequently doctorate, at the University of London. As his schedule did not synchronize with the Indian school calendar, I invariably ended up shifting from one school to another right in the middle of the school year. This occurred not once or twice but thrice, the last shift taking place when I was in the tenth standard and just three months before

the final examination. Studying in girls only convent schools had some unforeseen drawbacks, such as one of the schools removed the option of studying mathematics for the Indian School Certificate Board Examination (ICSE), in the firm belief that since girls did not go on to study engineering courses, mathematics was not required. On my persistent demand, the school finally relented and facilitated my studying mathematics as one of the major subjects. This was the first inkling I had in my mind of my preference for 'quantitative' subjects, even though I appreciated everything from history and geography to literature. I am eternally grateful to my very insightful mentor at the Dehradun high school who introduced me to the self-learning, problem-solving approach to understanding subjects. He advised me to study physics and mathematics by tackling problems on my own, rather than attending special classes to catch up with the topics left uncovered due to my shifting schools frequently.

College life and Discovery of Biophysics

After completing school in 1966, the subjects I should study was decided by several unrelated factors. My first choice for engineering (particularly architecture) was ruled out since, being only fifteen, I did not meet the minimum age criteria for admission. My second choice of studying mathematics, physics, and astronomy was vetoed by my brother who did not want me to study at the same college as his. So I enrolled at the Women's College of Osmania University at Hyderabad to study mathematics, physics, and chemistry for my bachelor's degree. However, I lost no time in moving to the University Science College in my second year by opting for the physics honours course which was only offered there. The first experience of studying at a co-educational institution and competing with boys was quite liberating. Having grown up with two brothers and being treated as an equal at home, at least by my father, meant that I had no difficulty in 'being one of the boys', sharing back benches and bunking classes when bored.

I thought my education would now progress smoothly, but in 1968, when I was in the final year of my graduation course, the first round of violent agitation for a separate state of Telangana broke out and classes were frequently disrupted. Living in the Osmania University campus, which was the epicentre of the agitation, we were virtual prisoners at

home and had a very stressful time. Finally, after a delay of one whole year, I graduated in 1969 (the year I gained in school was thus lost in college). My ambition was to do my postgraduation at one of the Indian Institutes of Technology (IIT) or Indian Institute of Science (IISc) had to be shelved due to my mother's health problems. My father expressed a feeling that if I continued staying at home and studied at Hyderabad itself, it would help my mother. Despite some heartburn, I agreed and started my master's degree programme in physics at the Osmania University Science College, but the usual wanderlust got over after a year and in the second year I again shifted college. This was because I wanted to study the newly introduced optional subject of biophysics, rather than the more popular nuclear or solid state physics, much to the annoyance of my professors, who saw no future in this newfangled branch of physics. I also had to start studying biology, a subject I had not touched since my ninth standard and dissect frogs (my aversion to this was the main reason for ruling out medicine as a career in the first instance). While I found this difficult, my interest in the application of physics to biology was definitely aroused and I looked around for places where I could pursue my research in this area.

Fortuitously I came to know that Professor G.N. Ramachandran, a well-known scientist in this field had recently moved from Madras University to the IISc at Bangalore to set up the Molecular Biophysics Unit (MBU). I applied for PhD admission to IISc, but it seemed that Telangana politics would derail my hopes again, since the final year MSc examinations were delayed and coincided with the admission interviews at IISc. I was really depressed when I thought that I would lose one more precious year, but by a curious quirk of fate, the Molecular Biophysics Unit (MBU) being a new department had few applications in 1972 and decided to interview me a day after all other candidates had already been interviewed. So, the day my last examination got over, I took an overnight train from Hyderabad to Bangalore and appeared for my first and only interview for PhD admission, conducted by a four-member committee headed by G.N. Ramachandran. Since I was the only candidate being interviewed that day, the committee members were quite relaxed and had ample time to grill me on topics in basic physics and whatever little of biophysics I had picked up. They must have been impressed since I was given an indication that I would be

selected provided I got a first class in MSc. As my examination had just got over, I had no idea when the result would be announced and a tense waiting period ensued. Fortunately, the university did not let me down, the results were known within two months and I set forth on my journey covering a lifetime in scientific discovery.

Chance and Choices in Early Career

The IISc at Bangalore has been my 'home' since 1972, a stark contrast to the early 'wanderings'. The first few years were a bit of a roller coaster ride. Rather by chance, sometime in October 1972, while I was awaiting my designated supervisor's arrival, G.N. Ramachandran (popularly known as GNR) asked me to carry out some calculations investigating the role of hydroxyproline aminoacids in the triple helical structure of collagen that had been proposed by him almost two decades earlier. Here I was, with absolutely no knowledge of computer programming or large biological structures, actually expected to write programmes in FORTRAN computer language to generate atomic coordinates of the complicated coiled coil triple helix of collagen and its associated water molecules, as well as check for potential hydrogen bonds. Somehow I coped, with some help from Dr C. Ramakrishnan, and to my surprise, the work got published in a journal titled *Biochimica et Biophysica Acta* (BBA). Incidentally, the hypothesis proposed in this paper was confirmed twenty-five years later by X-ray diffraction studies of collagen model oligopeptides by Helen Berman's group at Rutgers University—a very satisfying outcome indeed. My work must have satisfied GNR since he decided that he himself would supervise me for a PhD thesis on computational modelling of collagen structure. Four tumultuous years followed, full of highs and lows, working under GNR.

G.N. Ramachandran's high expectations from all his co-workers and the limited facilities available kept us on tenterhooks, but also brought out the best in us and taught us to aim high, work hard, and think independently. Barring some hiccups along the way and many nights spent prowling around the computer centre with card decks, to snap up any available computer time (it was the era of punch cards), I completed my doctoral thesis in four years, with half dozen publications and also made some lifelong friends. I was by then already involved in a project

examining the structure of deoxyribonucleic acid (commonly referred to as DNA), for alternatives to the iconic right handed Watson-Crick double helix. This work had been initiated at MBU by another visionary scientist, V. Sasisekharan and was extremely controversial. However, I found it very challenging and so, instead of proceeding to do post-doctoral work abroad (as was usual) I stayed on at MBU to explore the exciting domain of nucleic acid structures.

An added incentive for me to remain at IISc was that among the various friends I had made was one who I felt could be my life partner and he was still working on his doctoral thesis. In the meantime, my parents were getting anxious about my single status, so I formally introduced my fiancée, Indraneel Sen to them. Fortunately, both sets of parents seemed relieved that their 'difficult to please' offsprings had found someone and we got married in 1979. Immediately after he completed his PhD, my husband was offered a faculty position at IISc and it appeared that I would also get one and hence turned down an offer from another university. However, when the faculty selection was finally made, my lack of exposure to a foreign laboratory seemed to work against me. I decided to fill this gap in my resume and went to the European Molecular Biology Laboratory (EMBL) at Heidelberg, Germany, on an Alexander von Humboldt Fellowship, to work with Don Marvin, a pioneer in the field of X-ray fibre diffraction. I could not have chosen a better place, since EMBL was a young institution, very interdisciplinary, with state-of-art facilities and a pan-European culture. As the first Indian to join there, I was welcomed with great warmth and some genuine curiosity about life and opportunities, particularly for a woman scientist, in India. I thoroughly enjoyed my work, as well as the extra-curricular activities in Heidelberg. However, even though the Humboldt fellowship was for two years, I was undecided about staying on for a second year. To add to my confusion, one of the group leaders asked me if I would like to continue at EMBL in a regular scientist position. Before I could quite grasp the implications, I was invited to a meeting with Sir John Kendrew, the director, for an informal thirty-minute conversation, and the following day I had an offer letter from EMBL!! I was now in a serious dilemma—but with the 'foreign returned' tag on my resume and a job offer at EMBL, I was in a stronger position to negotiate with IISc and finally joined the MBU as a faculty in 1982.

A Taste of Joy and Much Frustration

The joy of getting the long awaited faculty position at IISc was rather short lived. Computational facilities available at that time were minimal and there was little hope of improvement, since the USA had banned sale of sophisticated computers to India. After exposure to all the high-end facilities at EMBL, it was a rude homecoming and the first few years were not very productive. I therefore had to venture abroad once again, in 1986, this time to USA for six months, on a Senior Fulbright Fellowship. This short trip turned out to be very useful, since at University of California San Francisco (UCSF), I was able to interact with two renowned groups working on DNA structures—Kollman's group focussed on computational aspects while James' group used nuclear magnetic resonance technique. Interestingly, my interaction with N. Pattabiraman, an ex-student of MBU, who was then a post-doctorate at UCSF, turned out to be very fruitful. We discussed about quantitative parameters to describe the variable DNA double helical structures and worked on an algorithm to describe them, which after several rounds of upgradation, became the bedrock of my group's future work.

The advent of personal computers in late 1980s and a couple of motivated research students improved things considerably and my group started examining the various twists and turns in DNA structures with renewed enthusiasm, attempting at novel ideas. Funds were still in short supply for everything, from buying equipment to attending conferences, to renting a flat! In fact, in 1988, when I was invited to attend a workshop on nucleic acid structure at Cambridge, UK, I could not raise even the minimal amount required for airfare. On impulse I decided to spend the equivalent of two months' salary from my personal funds to attend the workshop. It was probably the best investment I have ever made—I was able to showcase our work to the who's who of nucleic acid structural community and became member of an international group set up to define the parameters for describing nucleic acid structures. We published two reports, in 1989 and 2001, outlining the consensus views and these have now been accepted worldwide. After this, things worked out relatively smoothly and my group explored various aspects of protein and nucleic acid structures and their functional importance using the upgraded computational facilities that became available in the 1990s.

Brief Foray into Unchartered Waters

Just when things seemed well settled, in fact a bit boring, in 2001, I was offered an opportunity and a challenge to help set up an Institute of Bioinformatics and Applied Biotechnology on behalf of the state government of Karnataka's Vision Group on Biotechnology. As founder director, starting from scratch, I was supposed to primarily recruit and train youngsters who could be employed in the sunrise industries of bioinformatics and biotechnology. With a staff of two very able assistants, I was able to frame the course content, conduct an all-India entrance test, and select thirty students, from about 2,000 potential candidates, with diverse backgrounds ranging from engineering to agriculture and basic sciences. The fact that so many youngsters were willing to put their future in the hands of a completely new and unknown institution came as a huge but pleasant surprise. After recruiting the students, the next challenge was how to keep them busy. The associations built over the thirty years at IISc came in very handy and a large number of colleagues and friends came to the rescue by accepting my requests to not only deliver lectures to the heterogeneous bunch of students and set them assignments, but actually travel across Bangalore to do so—their sincerity and helpfulness was truly remarkable. The next job was to meet the goal of giving the industry what they needed. To achieve this goal, I had to foray into the unchartered waters of meeting chief executive officers (CEOs) and chief scientific officers (CSOs) helped by the fact that the initiative for setting up the institute was led by Ms Kiran Mazumdar Shaw, CEO of Biocon.

Venturing out from the rarefied academic atmosphere of IISc, it was indeed a novel experience to tour various companies and involve them as stakeholders in this new institute, to help fine tune the academic programme and take the students under an internship scheme, as well as contribute financially through fellowships and research grants to faculty. I think we were reasonably successful and the first batch of students graduated less than two years after the institute was conceptualized and all of them got job offers in various companies. Ironically, even though they had all joined the course with the intention of taking up jobs, some had a rethink and were motivated to carry on in academics and joined for PhD programmes. I don't know if this rates as a success or failure! After three years of hard, though very fulfilling work, handling about

50,000 e-mails, successfully mentoring and graduating two sets of students and setting the institute on a firm footing, I started missing the research environment and decided to return to the safe haven of IISc. Of course, it was like starting afresh, since my research group at IISc had dwindled during my stint away, and the continuity in research programme was lost—but then what is life without a challenge?

I am now back where I started my scientific voyage from—overall satisfied that I have faced the various challenges life has thrown at me, with energy and with reasonable success. Of course there are things one could have done better or at least differently, but then there are bound to be some regrets in every life. However, on the whole, I consider myself very fortunate in that I so much enjoy the work I do and hope that, notwithstanding the occasional run-ins with authority, I have done my bit to maintain and foster the ecosystem which has facilitated this. Finally, my advice to all young people—consult and consider other people's opinions when making critical choices in life, but follow your heart, choose a career where you love what you do. Do not worry too much about awards and recognition, they will automatically follow to some extent at least, even if not as much as you may expect and perhaps even deserve. Life is then so much more enjoyable, almost like a perpetual holiday.

Kiran Bedi

WOMEN AND SOCIAL DYNAMICS

a cross-cultural experience

Is a woman born always to pay the price for being a woman? Will she always be considered a commodity to be passed over? Or a property to be possessed, transferred, and owned? Or work as a slave at times for a price already paid for?

Who are we talking about? Not about the kind of woman whom we see and recognize and who escaped it all by good fortune or by sheer determination but for the vast majority of invisible women around the world who neither had the right parenting nor the circumstances to fight this evil. The position of Indian women in our society is directly interlinked with the following scenarios and questions:

- Where is the girl born before she grows up to be a woman? Which family is she nurtured in? What kind of mindsets is she exposed? What kind and level of economic status does she belong? How much resource can she avail? Which religion does she belong? Which caste does she belong? How many siblings does she have? Does her family show preference for boys?
- Where was she born? Was she born at an urban or rural place? Does she come from a forward or backward area? What kind of infrastructural facilities, such as transportation, education, and training can she avail?

- Does she have schools in her neighbourhood? What kind of schools are they? What type of teachers do they have? What type of mindsets do they have? What is their attitude towards gender issues? How is the environment in school? Is English the medium of instruction? What is the school policy? What kind of schools are these—missionary, government, or private? Do schools have facilities to provide higher education or prepare for a professional degree?

The position of an Indian woman is undoubtedly influenced by all the above factors and situations. These hugely affect her as they do the boys. However, it is considerably different for a girl child/adolescent, in view of the strong controls on all these factors. She is constantly dependent on family/peer/social approvals, at times unduly restrictive to the point of suffocation.

The matter does not end here. Even if a woman in contemporary India receives (and there are innumerable now) the best of it all from her parents there is still the defining question of her status in society when she marries. The questions related to marriage are:

- Whom she marries? How she marries? With how much she marries? What kind of a man is he? And, in relation to the in-laws, most importantly the mother-in-law, who is she? What is her belief? How secure or insecure is she? What are her expectations?

- What are her husband's expectations? How soon does he desire her to be a mother and how many times? If she has a say in it, what kind of financial independence she enjoys or has? Does she have full or partial rights?

- What kind of space she has in relating to her own family? Is she in a position to support them in case of need?

- Most of all, is she a mother of a son? How many sons does she have? For that many times, she is considered socially secured (with no reasonable social security schemes in sight yet!). For parents in India, and most of all for a woman, sons provide a sense of lifelong security, and what they become as men, add to her status in society.

Such circumstances place women in the categories of the 'haves' or the 'have nots'. The 'have nots' comprise the depressed, dependent, oppressed, controlled, enslaved, supervised, permitted, placed, protected, covered, hidden, sheltered, worshipped, abused, used. The 'haves' consist of leaders, champions, beacons, thinkers, writers,

entrepreneurs, professionals officers, inventors, sarpanchs, rulers, and goddesses. The latter category attain greater success in life, in comparison to the 'have nots', as they are different from the former with regard to their place of birth, their expectations, and their determination to give shape to their goals. This is a growing populace, no doubt, including more than a million women of our village panchayats.

But the more the status changes, the more it remains the same in an accelerating population of over a billion with a skewed sex ratio because of selective sex determination, making girls disappear. The last I heard was, of purchase of a woman by a man for there was no woman of marriageable age left for him to marry, in his village. In a society, which continues to prefer boys over girls there will be a need to buy, kidnap, or procure women to marry. All this is a part of the contemporary Indian society, notwithstanding economic prosperity and higher education.

In India, a woman is still not an individual by herself. She is first a daughter, a wife, a mother, a sister, a daughter-in-law, or a mother-in-law. The point is, while a woman is expected to perform all her roles, it is often forgotten that she too has an independent status. Examples of such women are many, though we are not talking of exceptions!

The reason why I am unsparing in what I say is based on my experience in Africa where I came across the practice of a custom called the bride price. It is a dowry paid to the bride's family to have possessed the bride. Many times the absentee fathers came in at the 'right time' to trade and walk away with the daughter's price. There is, of course, no smothering of girl-child infants, like in India. In many instances, it was evident that by practising this custom, the parents looked at their daughters as sources of income and often demanded too much from the groom's side. However, I think that we in India are in a worse situation when we pay hefty dowries to the family of the groom.

Protesting against this prevailing custom of bride price, women's groups across Africa came together. They recalled some exceptional individuals who had inspired them to raise a voice against the custom. For instance, sixty-seven-year old women's rights activist and one of Kenya's politicians, Mrs Wambui Otieno-Mbugua, claimed to be the first Kenyan woman to reject the payment of bride price, who at the time of her marriage, had told her father (to the applause of everyone present), 'I am your daughter and cannot be bought by anybody'.

The practice of bride price is an entrenched cultural institution widespread in Africa. What started as a token of appreciation that cemented the bond between two families has gone on to become a tradition for the accumulation of wealth, with the bride's family routinely demanding large number of livestock in addition to other presents. It requires the man to give money and goods as well as foodstuffs, and in some cases, labour to bride's family. The tradition may vary from country to country and from one clan or tribe to another. But once the groom has paid all that had to be paid, he starts looking at his wife as his property. The practice of bride price perpetuates the low status of women and keeps them in bondage and abusive relationships. Many young women in these marriages were unable to refuse cohabitation or insist that their husbands protect themselves, which made them vulnerable to HIV/AIDS. 'You have been paid for, so how are you able to negotiate in such a relationship?' the women are told.

Will we ever have 'Freetowns' (Freetown, the capital of Sierra Leone, is a city where all slaves were freed by the USA in one day; hence the name of the city) for women where grooms have not to be bought and brides not enslaved by the practice of bride price?

Well, it is possible only when communities encourage women and girls to seek alternative ways of valuing women and girls through their skills and abilities and empower them to contribute to society's development; and when governments establish enduring partnerships with non-government organizations (NGOs) to prepare the civil society to agitate for and bring about change. In other words, the enlightened leadership both in governance and in the voluntary sector need to work together to improve the position of women in our society.

Give to Others What You Want For Yourself

Today, with women coming into positions of power, they need to remain sensitive to others' needs. They must give to their own juniors and peers what they are looking for themselves, such as encouragement, mentoring, promotions, training, access to resources, support, understanding, appreciation, rewards, recognition, transparency, and so on. Independent of whether they receive what they need from their own

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seniors, all that they like to earn for themselves, they must give to those they supervise and lead.

Women are perceived to be givers and sharers. Hence, we must continue to build on this positive perception and belief. Perhaps we are 'hardwired' on it when small. Hence, we need not change what is our strength just because others do not endorse or support.

Be the Change You Want to See

If you want to see integrity, courage, discipline, hard work, fair play, welfare, then you should provide it first. Do not just wish you had it while you deny it to others. You should initiate the change and lead the way.

Women today have a wide range of choices to make; earlier, there were none whatsoever, as in the case with television channels. From a complete absence of a media called television to the introduction of a single Doordarshan channel that was viewed through a black and white television to the gradual shift to a wide variety of colour televisions, with hundreds of competing channels led to the opening up before us of a different world. Similarly, in the past, the women's world moved around the home and family. The gold ornaments they used to receive at the time of marriage, was the only possession they had to make them economically secure. Emotionally, they felt secure remaining dependent initially on their husbands and later on their sons. Her journey was a short one: from the parents' home to the husband's. She was expected to serve and be unquestioning. She personally owned nothing. Everything belonged to the elders and the husband. Anything asked for, she was expected to part with. There was not much conflict, as there was no choice.

Today, women have an array of choices, yet each one of them have the potential to arouse conflicts. Hence, with the widening of the women's world she needs to cope up with a broader range of issues—professional demands and expectations, responsibilities at home, children's needs, family relationships, time constraints, physical capabilities, financial status, social expectations, job insecurities, and many more. How do we handle these competing demands with inherent contradictions and conflicts? How do we learn to deal with conflict management? Who teaches us? What kind of solutions do we need to strive for? How much time should we take to learn?

Accept that there are differences. Be yourself—not a man.

Rajashree Birla

MAESTROS OF CHANGE

stories of hope

From time immemorial, women have been and continue to be alchemists. History bears evidence of women being in the forefront of the change movement. Rather than penning down how women can bring in such changes, the narrative on the real achievements of such extraordinary women proves the premise. In fact, I believe that stories linger longer than logical explanations. Therefore, allow me to take you through a cameo of some outstanding women and show the changes they have effected in the lives of tens of thousands of women.

The Backdrop

Today, from academia to intellectual professions, such as law, medicine, architecture, engineering, and computer sciences, and even in space, women have more than made their mark. But you will be surprised to learn that way back in 1877, when no British university granted degrees to women, Kadambani Basu (1861–1923) and later Sarala Das sat for the entrance examination of the University of Calcutta. Kadambani later became the first female physicist of the British Indian Empire. A few years later, Anandi Gopal Joshi (1865–1887) or Anandibai as she was

popularly known, was the first woman who sailed from India to enrol in the first women's medical programme in the world, held at the Women's Medical College of Pennsylvania. She earned an MD degree as well in 1886 and received a congratulatory message from Queen Victoria.

Keep turning the pages of history and you will discover how women played an activist role even during the freedom struggle. Sarojini Naidu (1879–1949), the freedom fighter, who worked shoulder to shoulder with the Mahatma, was the first lady governor of independent India.

Among the 776 distinguished Nobel laureates thirty-four are women, most of whom have their claim to fame through the discipline of medicine or for promoting peace, or for their contribution to literature. Other such inspirational women include Marie Currie (1867–1934), Dorothy Hodgkin (1910–1994), Linda B. Buck, Christiane Volhard, Pearl S. Buck (1892–1973), Betty Williams, our very own Mother Teresa (1910–1997), Aung San Suu Kyi, and Shirin Ebadi.

The year 2011 has been phenomenal with three women—Leymah Gbowee, Ellen Johnson Sirleaf, and Tawakkul Karman—winning the Nobel peace prize. Announcing the awards, the Norwegian Nobel Committee Chairman, Thorbjørn Jagland observed that these three women will share the 2011 award 'for their non-violent struggle for the safety of women and for women's rights to full participation in peace building work. We cannot achieve democracy and lasting peace in the world unless women obtain the same opportunities as men to influence developments at all levels of society.' This singular statement epitomizes the tremendous role that women play as catalysts in the world over.

Harbingers of Change

In this context, I would like to focus on the contributions of four such inspirational women. The first is Mother Teresa. She is one of the most extraordinary women, who changed the perspective of people through which people saw suffering and poverty. Her life has been absolutely amazing. Born in Macedonia, she was an Albanian. Right from her childhood, service to humanity seemed a calling with her. When she was barely eighteen, she joined the Sisters of Loreto, an Irish community of nuns in India. She came to India in 1931 and for nearly twenty years she taught at St Mary's High School in Calcutta. When she saw the suffering and poverty outside the convent walls, she left the convent

school to start working with the poorest of the poor in the slums of Calcutta. She was helped by volunteers and those who were moved by her work.

In 1950, Mother Teresa established the Missionaries of Charity. The purpose of the mission was to love and care for those who were totally helpless and had nowhere to go. Mother Teresa created a global network of homes for the downtrodden, from the slums of Calcutta to the shanties of New York and set up one of the first homes for victims of AIDS. As Pope Paul VI validated her work, she became a global force. She fought misery and despair in every possible way. Whether it was in Ethiopia or in the squalid slums of South Africa, or the earthquake victims in Central Asia, the AIDS patients in America, or the handicapped and the leprosy afflicted in India, this Angel of Mercy was always there.

When she won the Nobel Peace Prize in 1979, for 'Work undertaken in the struggle to overcome poverty and distress, which also constitute a threat to peace', she requested that the money to be used for the ceremonial banquet be sent to the poor in Calcutta. She felt the money could be better used to feed hundreds of needy for a year rather than for a ceremony to honour her. She believed that earthly awards were important only if through it she could reach out to the needy. While accepting the Nobel Prize, she said:

I choose the poverty of our poor people. But I am grateful to receive (the Nobel) in the name of the hungry, the naked, the homeless, of the crippled, of the blind, of the lepers, of all those people who feel unwanted, unloved, uncared for throughout the society, people that have become a burden to the society and are shunned by everyone.

Many other accolades were conferred on her. But it meant little to her. Her passion was to bring back the smiles on the faces of the poor.

She lived by God, worked for God, and looked upon everyone as children of God. Mother Teresa died in 1997. By then, Mother Teresa's Missionaries of Charity had over 4,000 sisters, an associated 300-member brotherhood, over a lakh of volunteers, with operations in 123 countries by her committed followers belonging to 610 missions. Imagine what a single woman achieved and how she changed the world, more importantly, the life of the poor in India!

The second outstanding example is that of Ela Bhatt—the founder of Self-Employed Women's Association (SEWA). Her contribution to

the cause of women in the unorganized sector, her unending struggle for their emancipation through self-reliance and self-employment are legendary contributions. Headquartered in Ahmedabad, SEWA is the single largest trade union in India with a membership of nearly seven lakh women. The members of SEWA are simple women—vegetable and garment vendors, tailors, embroidery artisans, head-loaders, beedi rollers, paper pickers, construction workers, agarbati makers, and farm workers. They belong to India's unorganized sectors. The very concept of a trade union in the self-employed sector is not at all easy. To be a woman and to unshackle the grip of well-entrenched, male-ruled trade unions, can be reckoned as a game changer. Elaben accomplished her goals in the humblest manner, without hubris and without aggression. This endeared her not only to non-governmental organizations (NGOs) in India, but global institutions too.

Elaben not only launched the SEWA movement in India, but was also an inspiration for Bangladesh. Muhammad Yunus, whom I met over a year ago, said that he was greatly influenced by Elaben and her model. So he translated her philosophy of reaching out to the poor by instituting the Grameen Bank in Bangladesh.

The SEWA Bank, founded in 1974 by 4,000 women, each of whom contributed ten rupees, is yet another flourishing success story. Today, there are over a lakh depositors. The bank was started to give credit to women so that they need not have to go to the moneylender to enhance their businesses and to build up assets in their own name, or for the education of their children, or for any other emergency. Incidentally, Elaben was the founding member of Women's World Banking in 1979 with Esther Oculoo and Michaela Walsh. She was also its chairperson from 1980 to 1998.

As part of a group that collaborates with SEWA, I met Elaben several times and have been most impressed by the manner in which she has elevated women to the position of agents of change and leaders. Elaben always says that Gandhiji felt that women are natural leaders in the fight for social justice, where love, peace, and non-violence are the chief weapons of the fight. I agree with her view and also believe that women have the capacity for social change.

Likewise, Jaswantiben Popat, who started the Shri Mahila Griha Udyog, is no ordinary woman. She has spearheaded a mass movement for the uplift of uneducated, lower middle-class Indian women—

making Lijjat papads, Lijjat pickles, and other Lijjat brands. Lijjat papad has a shareholder base of more than 80,000 Indian women, largely from impoverished and very humble backgrounds. Jaswantiben or Baa, as she is popularly known, is an icon of women empowerment. She has proved that she is more than equal to a man.

The next example that I would like to highlight on is my mother Sarala Birla. She has an indomitable spirit. She symbolizes commitment, passion, integrity, and compassion. Apart from being one of the finest educationists, having established more than twenty schools, she is a woman of substance, a highly spiritual person, and a great source of inspiration for me and many others.

Each of these four women were driven by a passion—to reach out to women, to engage not in charity but provide women empowerment, and to make them believe that they can achieve success through grit, determination, and an iron will. What is equally important is that in spite of their remarkable achievements they are humble human beings for whom the family rises above all. So after the family they extended their circle of influence and, through their transformational leadership qualities, helped make women socio-economically strong, embedding them with a great sense of self-esteem and self-confidence. For all of them gender equity was a non-issue.

Striving towards Hope

I also want to allude to two of the most path breaking acts in recent times—the right to Information Act and National Rural Employment Guarantee Scheme (NREGA). Both these game-changing acts were the outcome of helping the rural poor in their fight against poverty, and citizens in their fight against injustice and repression. Aruna Roy, a former IAS officer and Magsaysay Award winner and an activist now, was one of its most vocal protagonists.

Furthermore, there are other unsung and unknown women in the hinterland of our country, whose contributions are commendable. Women in villages, self-help groups, at the helm of panchayats, primary healthcare workers, rural teachers, those deeply engaged in balwadis and anganwadis, tribes of Asha, who helped mothers-to-be deliver their babies at proper hospitals—all of them have contributed significantly to the changing face of independent India.

To encourage women participation, our government has wisely ordained that women be significantly represented in the village panchayats. In many villages, today, quite a few women are playing leading roles. In 2010, I believe more than 1.2 million women have been elected to office in village panchayats and elsewhere. It would be naive to believe, however, that all the women panchayats exercise the power and authority vested in them and that they do not kowtow to their husbands.

The Aditya Birla Centre for Community Initiatives and Rural Development, are engaged in 3,000 villages and reaches out to approximately seven million people. The projects revolve around the promotion of education, healthcare, sustainable livelihood, infrastructure, and social reform. In these villages, where there is an ongoing race in the fight against poverty, the focus is on the entire population. The aim is at inclusive growth and to reach out to as many women as possible.

Among the several activities centred around women, one of the experiences that I would like to share is training women on how to become effective sarpanches. We train them in accounts, maintaining books, and administrative skills. We have convinced them that theirs is a position of great responsibility and that they have to live-up to the faith which the villagers have reposed in them by electing them. They have a lot of courage. At the same time, our teams are sensitizing men to these roles in a persuasive, non-aggressive way, impressing upon them that their support to their 'sarpanch patnis' must be formidable. Of course, some women have candidly confessed to be following the diktats of their husbands in taking the Panchayat Raj forward. I was very amused, when I was introduced to one of the husbands as 'sarpanch pati'.

Regardless, the hostility that one saw earlier to women sarpanches is giving way to a newfound respect for women. And this change, in our view, is the direct outcome of the manifold benefits that women sarpanches have brought to their villagers by entering in the public domain.

In this context, the contributions made by two women for their respective villages may be mentioned. The first is Leelabai Parmar, who lives in village Bhatishura, housed in the Nagda Tehsil, Ujjain, Madhya Pradesh. Like several villages in Madhya Pradesh, this village also had poor development indicators. Cleanliness, empowerment, belief in oneself—were things unheard of. When Leelabai Parmar became sarpanch, our team from Nagda pursued her to don a leadership role. Her husband fortunately encouraged her at every step. He would

willingly cycle her to the block office for meetings with development officials whenever required. She began the immunization and family welfare projects, convincing people in the locale to help bring in cleanliness, healthcare, and invoke in them the urge to stand on their own feet, rather than blame the stars for their condition. Gradually, she was able to bring the desired change. After the immunization and family welfare programmes were fairly entrenched, she began the sanitation drive. Today, almost every house in this tiny hamlet has a toilet. She began organizing self-help groups. She goaded parents to enlist their daughters in the village school. These girls in turn are tutoring their mothers on the basics such as reading, writing, and managing household accounts. There is a palpable change and a new-found energy in the village.

The story of Shakuntala, one of the beneficiaries of these programmes, is both touching and inspirational. Shakuntala lives in Dudhi Block, Renukoot, Uttar Pradesh. A mother of five children, she along with other village women, would trudge 5 km to fetch four pots of water for the family, and even that too barely sufficed. Voicing her opinion in timid tones, she would say that women in the villages are children of a lesser God, given the hardships faced by them. Our team took this up as a challenge. Backed by our group's resources and the UNICEF, they installed hand pumps at an interval of every ten houses in 110 villages, giving water to over a 1,00,000 people. No longer did women have to spend hours to collect water. The UNICEF collaboration entailed that the hand pumps be maintained by women. Shakuntala was the first woman volunteer. Today, she is a qualified hand pump mechanic earning 650 dollars in summer, when the pumps need to be repaired. In turn, she has trained another eighty women as hand pump mechanics. These women, who cannot read or write, earn a good deal of money by rural standards.

Today, Shakuntala very proudly remarks that from being a seeker of charity, she is now a teacher. She says that the group has been a life changer not only for her, but for all the 110 villages which now have easy access to water—their life force. Another 45,000 women across India feel empowered, working in 4,500 self-help groups set up by our teams. They are making a living. These women like Shakuntala believe that they are now in charge of their own destiny as they celebrate a new life and identity.

Armaity S. Desai

TRANSFORMING HIGHER EDUCATION
FOR GENDER EQUALITY

*capacity building of women managers in
higher education*

Inequities of one kind or another exist in all societies in spite of several countries with democratic constitutions emphasizing equality of all people before the law and have it as a state policy in their various programmes including India. However, rarely anywhere equity is seen in civic life, whether in the family, or the community, or the society at large. Race, religion, class, caste, gender, and age—all seem to remain as social dividers and hierarchies, even when parliaments legislate and courts impose. Among these, gender is the most pervasive of all, affecting half the population, perhaps in every country of the world. India is no stranger to it with our sex-determination tests and discrimination against the girl child carried into womanhood. Strangely, education, not even higher education, seems to change this mindset. In fact, it seems to exacerbate it on several counts, including sex-determination tests, which are largely urban based, and in demands for dowry, or an educated and employed wife who can bring a perpetual dowry through her earnings, rather than accepting her as a career woman fulfilling her dreams.

In this scenario of a highly patriarchal society, it is not to be wondered that the same attitude carries over to institutions of higher

education. In the 1990s, I had the opportunity to focus on an area of great concern to the University Grants Commission (UGC), that is, the invisibility of women. Since the 1980s, it has had a scheme for women's studies centres in universities and women's studies cells in colleges that focus on gender inequity. Unfortunately, it has remained a 'scheme' all these years although many centres have gone on to establish full-fledged degree programmes at the master's, MPhil, and PhD levels, as any other discipline. Yet, most vice chancellors have given no heed to constituting them as departments, although they are ever ready to establish those like computer science or biotechnology by provisioning these in their Five Year Plans, thus reflecting the patriarchal mindset of programmes in demand by male students. This is the extent of the powerlessness of women in the academic system where leadership is largely concentrated in male hands. It is rare to find women in leadership positions in universities and colleges in spite of the fact that women have been joining as students and teachers in large numbers. Apparently, the cultural socialization in a patriarchal society is so deep rooted that even the educated are not liberated, unless special efforts are made in this direction. The higher education system is not an exception and it uses the data and information on the position of women to undertake action for change.

During my term as president, Association of Indian Universities (AIU) in 1992, and as chairperson of the UGC from 1995 to 1999, I realized how deeply the glass ceiling affected the system. Not only there were too few women vice chancellors who attended the meetings of AIU, but most of those few were from women's universities. Moreover, male vice chancellors spoke vehemently during the discussions about their 'boys' until I would make an innocent face and ask if they only had male students! Then they would say 'No, sorry madam, we have women also' and some would qualify it by saying they had a majority of women students in some of their departments. They then began to use the word 'students' instead, when referring to them. If I attended a function in a university or a college, the women became the hostesses in their beautiful sarees and jewellery, welcoming guests, giving bouquets, organizing the food, while the key officials of the university or the college, mostly men, sat on the stage! It indeed surprised me to find family cultural patterns being unconsciously transferred into the institution quietly and subtly. Both in AIU and later again in the

UGC, I often had to see files of committees being formed for various purposes. I was amazed to find that there were hardly any women's names. I had to send back the file with a note: 'Please suggest names of women!' Even in the constitution of the boards of the UGC inter-university centres, I faced a similar problem. More recently, if you take a look at the website for the list of names of members of some very significant national committees formed by the Ministry of Human Resource Development (MHRD), there are either none or perhaps one woman on the committee. This is the extent of gender blindness from which we suffer even in the highest echelons of higher education and administrative services.

The excuse often given is that 'there are no women' or they do not know any women in the desired specialization. This arises from the fact that men make themselves visible for their career development, while women do not. Men will make courtesy visits on chairpersons, ministers, and secretaries, while women do not network and remain invisible. No effort is made to identify the large pool of highly competent women that is available in the institutions of higher education, whether it is for committee work or for appointments to managerial positions. During the recent large expansion of central universities, neither the selection committees, nor the political bodies, or the bureaucracy had any gender concern in the selection of vice chancellors in spite of my own efforts to bring this to the notice of a key person concerned with the selections. Appointing a couple of women among a dozen seems only lip service. Even such selection committees comprise all male members or have only one female representative, who cannot always pull her weight in the committee.

First Step towards Impacting the Problem to Initiate Change

Facing this situation, action was called for, and not only raising concerns in a few forums. I decided to discuss my concern with the UGC Standing Committee for Women's Studies. While we were examining the matter, the then secretary, UGC, G.D. Sharma, brought to my attention the project of the Commonwealth Secretariat, London, which he had attended on the side while at a meeting to which he was deputed in Sri Lanka. Evidently, the glass ceiling affected women in all the universities of the Commonwealth countries. Under the Commonwealth

Higher Education Support Scheme (CHESS), a training programme was developed for women in higher education which exposed them to the issue. In 1997, the UGC invited their team to India for a workshop to present training manuals and methodology at which members of the Standing Committee for Women's Studies, some women vice chancellors, and a few directors of women's studies were present. The strategy the Commonwealth programme used was commendable but the manuals needed to be made relevant to our Indian situation in higher education and our cultural context. A subcommittee, of highly reputed women academicians in women's studies was formed under the Standing Committee to develop and contextualize the manuals. Thus, the scheme of Capacity Building of Women Managers in Higher Education (CBWMHE) was initiated as early as 1997. This article discusses and reflects on the means of empowering women through a process of phased training and the impact of the scheme on women in the middle and senior positions in higher education in teaching and administration.

The Training Manuals

The subcommittee of senior academicians in women's studies worked on and produced five training manuals (see appendix) on themes that closely concern women academicians and administrators and the focus was on sensitizing them to develop awareness of the situation, some strategies to deal with the problem of women remaining invisible in the system, and reflecting on their own cultural blocks which affected their perception of themselves as decision makers and leaders. The objective of developing the awareness was to motivate them to want to aspire towards leadership roles in higher education, that is in universities and colleges.

To that end, the first manual dealt with the perspectives in women's studies so that they could develop appropriate understanding of gender and issues relating to it. This is followed by manuals on governance of institutions of higher education, academic leadership, personal and professional roles, and research, all emphasizing the gender aspects, such as issues in higher education governance that impact women adversely, or gender role issues in authority–employee relationships, qualities of feminine leadership, dealing with issues in personal and professional roles that affect or block women coming to leadership positions, and the importance of research in academic career advancement. Some

supporting manuals were also developed for the methodology of training of trainers, the role of facilitators, bibliography on women managers in higher education and training skills for adult learners, and a small survey to collect data on women managers in higher education in India.

These manuals are developed for women participants. This exclusivity is based on the assumption that power is never given away on a silver platter and so women will need to be empowered to struggle for change to promote gender equity.

The Methodology for Transaction of the Training Manuals

The methodology for the transaction of the manuals has been based on the theoretical framework of andragogy, which is a learning methodology for adult learners who learn because they feel a need to learn for their current or future requirements as identified by them, and not because they ought to learn, as in the case of children, for an unknown future. This means that there is great use of participative learning techniques and sharing of experiences through the use of such techniques as brainstorming, group activity followed by sharing of group experience, role play, and case studies. Such participative learning stimulates thinking in the learner as it is activity and experience based and the person is not a passive learner. It also affects the learner's feelings as it is highly experiential and touches the person's inner self. Hence, the triad of objectives of thinking, feeling, and doing (cognitive, affective, and psychomotor) are achieved in the workshop methodology. The programme is spread over five days.

The emphasis is not men versus women but the need to liberate women from their shackles to find a place in the decision-making structures of universities and colleges, thus bringing in administrative talent and competence which is otherwise lost, and making institutions gender friendly.

Initiating the Programme: Foundation Workshops on Sensitivity/Awareness/Motivation

The above-mentioned manuals were handed to the UGC in the year 2000 by Kamalini Bhansali, who was the chairperson of the Standing Committee for Women's Studies and former vice chancellor of SNDT

Women's University. I had completed my term as UGC chairperson a year earlier, and in spite of frequent reminders by Professor Bhansali, the UGC did not take further action. It was in 2003 that Professor Rajashekhar Pillai, director, National Assessment and Accreditation Council (NAAC), heard of it from Dr Lata Pillai, his colleague, that action was taken to implement the programme. I was invited to chair the National Consultative Committee for the programme, labelled 'Capacity Building of Women Managers in Higher Education', and initiate the first set of workshops in 2003 using the manuals. However, by 2004, the then chairman, UGC, Professor Arun Nigvekar realized that the scheme needed to remain with the UGC, and with the appointment of Professor Pillai as vice chairman, the programme became a UGC scheme in 2004.

A majority of the foundation workshops for the development of sensitivity/awareness/motivation (SAM) are residential, draw participants from universities and colleges of several adjoining districts, and focus mainly on the middle and higher levels, senior/selection-grade lecturers/readers and professors, and assistant registrars, as well as equivalent personnel in higher hierarchy in administration. The workshops have thirty participants drawn from all disciplines and it is for the first time that the faculty from several disciplines, such as humanities, social sciences, commerce, medicine, pharmacy, technology, agriculture, fisheries, horticulture, management and so on, have opportunity to interact and share some of the experiences, unique to their discipline and related to gender bias, or the commonalities of some of their experiences. In some cases, where living facilities are unavailable and there is an adequate density of educational institutions, the programme is non-residential.

The workshops have been exceptionally well received as an experience they have never had and with concepts and learning methodologies to which they were never exposed. Below are some of the comments on 'Your Space', the website of this scheme. They reflect on the positive impact of the design of the programme. Many comments have been received over the years by the organizers, but these are recent comments as the website was started only in 2010 and 'Your Space' was introduced later after the start of the website. (Names and institutions have been omitted as their permission has not been sought for; however, their discipline, whether college/university, as well as location have been mentioned to show diversity.)

Name	Experience
Economics, College, Mumbai	SAM workshop has proved really beneficial for me as it brought self-awareness and inspired me to have higher goals.
English, College, Tuticorin, Tamil Nadu	The SAM workshop which I attended during June 2011 really gave me more strength to guide my students and especially to motivate many more girl students in my college. I learnt, as a youth coordinator of our college, how to tackle problems and find solutions. Really it is a useful course for every academic woman.
Botany and Microbiology, University, Guntur, Andhra Pradesh	Basically I am a researcher in microbial biotechnology. The SAM workshop I attended had a profound impact on me and now I sincerely wish to work in Women's Studies.
Geography, College, Darjeeling, West Bengal	It was a very good attempt by the UGC to sensitize women to take up higher managerial posts. Personally, I am very much thrilled to have attended the SAM workshop in Darjeeling Government College. It motivated me to continue my research. Thanks to all organizers.
Education, Amroha, Uttar Pradesh	The SAM workshop increased our motivation to work for sisterhood, as well as to make our work visible to others.
Botany, College Gangtok, Sikkim	I participated in the SAM workshop which was a nice five-day break for me from my daily routine of teaching and home. I got to learn so many things and also got to know about the viewpoints of fellow participants. Definitely, it helped me to some extent in building my personality.
Home Science, College, Mumbai	Thanks to being a participant in a SAM workshop, I have learnt the approaches to good interpersonal relations, team leadership, worker participation in decision making, and the establishment of a climate of openness, mutual trust, respect, concern, and receptiveness. There are perceptible positive changes in our attitude and outlook in

(contd...)

Table (contd...)

Name	Experience
	the way we perform and have developed an increased sensitivity towards our social responsibilities and outreach programmes, which has made me more of a people person. My performance as a person, teacher, and mentor has improved in professional, personal spheres of life.
Zoology, College, Alleppey, Kerala	The SAM workshop was really beneficial and helped me to boost my confidence. I am waiting eagerly to attend another such workshop.
English, College, Rae Bareilly, Uttar Pradesh	The SAM workshop which I attended early this month has been an eye opener for me. It has given me a new perspective towards my professional goals and has awakened me towards my professional and social responsibilities. I sincerely thank all those associated with this programme for the same.

Training of Trainers (ToTs)

Early in the programme, it was realized that the scheme was much in demand and the handful of five manual authors would not be able to sustain the programme requiring wide coverage of institutions in the country. The need for training trainers arose. Out of the initial workshops, women who had good communication capacities and clarity of concepts were identified, and a six-day workshop was designed for the ToTs. The six days were divided into four aspects of training as follows:

1. The first one and a half days are spent in understanding the methodology of participative learning. This is done by one of the three key trainers who is an expert in the methodology.
2. The second aspect is a day of brief presentation of each of the five manuals, either by the author of the manual or a master trainer who is an experienced trainer associate and further qualified to be a master trainer. This helps to refresh their memories of the manuals from their earlier attendance at the SAM workshops as much as to model good practice in transacting the module.

3. The third phase is the formation of five groups with each group transacting a module or two from one selected manual and learning the 'how to' with feedback from the rest of the participants (trainees), key trainers, authors/master trainers, core group resource persons, and regional coordinators. A major aim of the workshop is shifting potential trainer associates, as they are called, from the lecturing mode to participatory learning methodology. Anecdotal feedback received shows that several of them are now using these techniques in their classroom.

4. The fourth and last sessions are devoted to administrative matters, that is, planning the workshops which will involve the new trainers, by identifying suitable institutional locations from among new trainers to take the role of local coordinator, allocating the new trainer associates to their workshop, and lastly, how to organize the workshop. A kit (like a manual) of details for the local coordinator (LC) and trainer associate (TA) has been developed providing among many documents the procedures, budget, as also the drafts of letters to be sent by the vice chancellor/principal of the host institution to the vice chancellors and principals in their region inviting nominations for the workshop and from the LC to the participants after nominations are received. Self-selection is also permitted. Thus, each TA is prepared to become a trainer, as well as lead a workshop in her institution as a LC.

The recognition of a person as a master trainer from the pool of experienced TAs is a process whereby the selection is done by the regional core group resource person (CGRP) and regional coordinator (RC) to present a specific manual of the TA's choice usually transacted by her at ToTs workshops. In a ToTs workshop, as mentioned earlier in Step 2, she is invited to make a presentation and is given a critical feedback by all present and, if found suitable, by the key trainer, CGRP, and RC, besides any other resource person present, she is appointed as a master trainer to substitute manual authors at the ToTs workshop. Only such trained persons are deployed so that manuals are transacted in the spirit and manner in which they were intended and the programme is similar round the country.

Excerpts below show how it is received.

English, College, Johrat, Assam	From a SAM participant to attending ToTs and then organizing SAM myself, was indeed a boost to my confidence. I really mean it. When I narrated my experiences to my colleagues, they were inspired to attend SAM (residential) making arrangements at the home-front, thereby moving out of the 'comfort-zone' to which most of us are attached and reluctant to move out. This itself is a step forward in carrying out the message of SAM. And yes, noticing my new-found confidence I have been appointed coordinator (IQAC) by the principal of my college. I cannot but convey my sincere thanks to ... for coming out with such an innovative concept.
English, Kottayum, Kerala	I must acknowledge the fact that I've grown a lot because of the SAM and ToTs I have attended. It has enabled me to reconsider my priorities and redefine my roles.
English, Najafgarh, New Delhi	Please hold a ToTs workshop soon. We are eager to attend.

A detailed observation from a facilitator who helped in a ToTs workshop:

Sensitization-Awareness-Motivation was indeed inculcated within us in SAM workshop. ToTs not only took us a few degrees higher but the workshop also trained us how to deliver the underlying message of SAM in other such SAM workshops.

... In the inaugural session itself, the CGRP ... clearly explained the purpose of the scheme which focuses on developing a mass of sensitized and motivated women administrators to create a gender-sensitive environment and thus to remove the glass ceiling.

... Key trainer candidly asked us our expectations from the workshop. With an assorted group of twenty-six participants spreading though the states of Bihar, Jharkhand, Orissa, Bengal, and Sikkim, even though it seemed a difficult task to come up with certain unanimous opinions but surprisingly the house almost opined similar expectations, such as honing skills, networking, balancing professional and personal life, learning through sharing, developing participatory techniques, and building self-confidence. Thus at the very outset (the key trainer) made it very clear that what would we be getting from the workshop and what not to expect.

... Manual transaction by the group was also followed by critique sessions where the performance of the group was dissected highlighting both positive and negative aspects. All the participants took the criticism in a very positive way, thus marking the success of the workshop in creating a motivated women force—the would-be administrators ready to take up management positions in higher education.

... On the whole, the workshop was a self-realizing and self-motivational one. The participants were unique in maintaining a cordial environment throughout without any major differences amongst them. There were sharing experiences that further bonded the group. ... the CGRPs ... taught the participants that hierarchy is ornamental. Fellow-feeling inculcated by the CGRPs, their bonding with the participants over lunch, dinner, and at times after dinner, was an eye-opener. It makes one feel that indeed you are not alone. A whole workforce of powerful ladies is there behind you to take you out of the soup at any time if the need arises. (Zoology, College, West Bengal)

As can be seen from the above, the focus is on realizing one's potential, developing a positive attitude to feedback for self-development, as well as on removing hierarchies to achieve greater equity in the system, participation, and a bonding that can create a movement of women administrators that supports and enhances the capacities of each. In a system where teacher feedback has received so much resistance, it is very noticeable that, even in front of the whole workshop group, barriers to receiving new learning are broken and self-defence mechanisms are replaced by openness to positive and constructive criticism for achieving change. Teachers, we are told, do not want feedback but when it is non-threatening and for self-growth, it is seen that they openly accept it from their peer group.

Management Skills Enhancement Workshops (MSEM)

Earlier in the programme, it was also realized that it would not be adequate to raise sensitivity and awareness to become women managers, but it was equally necessary to provide the accompanying skills required to be a manager, and especially one who is sensitive to gender concerns. Because a manager is a woman does not ipso facto imply that she is gender sensitive. The preparatory workshops, therefore, focus on gender issues before beginning training on management skills. Work on developing modules on specific management skills started in the

Eleventh Plan period (April 2007 to March 2012), although it was in our scheme even earlier. In 2010, the programme was further expanded to include workshops focused on specific additional management skills keeping in context the gender issues. By then, the scheme had covered over 4,000 women in universities and colleges and had over 300 TAs among them. Periodically, there were requests for developing management skills and several areas were identified where they felt that they needed better preparation to become managers.

All authors of the new management modules are themselves part of this movement and, hence, well aware of our emphasis on gender. Therefore, wherever it was possible, we have tried to relate the content of the management module to gender issues, such as in stress and time management, gender auditing, and gender concerns in human resource management. The authors have also tried to incorporate a participative methodology in the modules, as in our other workshops, so that participants are not passive listeners, and by their involvement in various individual and group exercises, discussion, brainstorming, role play and case studies, they are able to better incorporate the new learning. The themes of these two-and-a-half-to three-day modules in the context of higher education include: stress and time management, decision making and team building, recognition and elimination of sexual harassment, communication and negotiation skills, advocacy, human resource management, information and communication technology (ICT) in the management of institutions for higher education, and financial management, including gender auditing. Two modules are offered in each region with the workshops spreading over five and a half to six days, depending on the modules selected.

The modules were first field tested with the senior managers of this programme as participants in four regional workshops and the modules were revised by the authors. Each author is continuing to take workshops now open to all, to further fine tune the contents and the methodology. At each workshop, those participants who are knowledgeable of the subject matter in their discipline are being identified and attend subsequent workshops as preparation to share or take over the responsibility as a TA from the author. Since our participants and TAs are drawn from all disciplines, it is not difficult to find suitable persons such as for finance and budget, ICT, and human resource management.

The quote below shows its impact:

Principal, Home Science College, Beed, Maharashtra	I am happy to share with you all that I have been elected as a member of the Academic Council of our University. I contested the election from the general category and won. The MSEM workshop on Negotiation and Communication Skills helped me in this election.
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Academic/Theoretical Inputs

In a knowledge environment, workshops in the academic community must be based on concepts abstracted from existing theories and available research. Each of our SAM and ToTs training manuals and management modules is based on the theoretical framework of the subject matter whether it is governance, or leadership, or skill-based manuals which are derived from their respective disciplines. Thus, the programme is reflective of a serious academic exercise but its mode of delivery is different from the pedantic classroom-type learning. Precisely for that reason, the participants have gained both knowledge, as well as self-discovery while acquiring it, even in the case of those who are from the same discipline. At the same time, though participants may come from very different disciplines, they are able to relate to the subject matter because, as adult learners, they desire such knowledge for their own career trajectory. While most of them come to the first workshop quite bewildered by what it is all about and even sceptical, as many have been nominated to come by their respective vice chancellors and college principals, they are quickly able to see it for relevance to their current lives and their future in academia. Interestingly, after exposure to the manual on research for women managers, several have seriously addressed themselves to enrolling or completing their PhD degree. Thus, the workshop is not a talk shop but engages them in new knowledge while, at the same time, touching their inner selves. It creates an informed heart and does not split the head and the heart! A vice chancellor capped it thus: ‘Generally, I do not go to inaugurate programmes in my institution, but I investigated and found it a well-researched programme so I am with you today.’

Participative Management of the Programme

To be able to administer this vast network of universities and colleges in a large country like India without employing staff, and without the usual staff support, either for those currently working in academic institutions or those retired and taking responsibility, it was initially decided to divide the country into five zones with leading women academicians in charge, especially with a background in women's studies, becoming RCs and the manual authors becoming CGRPs. Together, a CGRP and a RC assume responsibility for a region including planning, programme development by assisting the LC to develop proposals, and by being present to facilitate and monitor the workshop. Later, some of these regions were further divided to make ten regions as the number of workshops rapidly increased and it was necessary to reduce the load carried by the initial five RCs. In some cases, larger regions are served by sub-regional coordinators (sub-RCs) who work in tandem with the RCs. This administrative structure, purely voluntary, does not work hierarchically but as a network, and has made it possible to take not only the programme forward, but also to make it a movement of women for women and by women. Uniquely, unlike other committees of the UGC, the National Consultative Committee of this scheme is composed of the above managers of the programme and four to six others who carry no responsibility and serve as listening and advisory group in the committee. They are eminent in the field of women's studies and issues. It is, thus, a highly participative strategy of policy, planning, programme development, and implementation. Perhaps, the quote below is a reflection of this style of management.

Management,
Deemed University,
Rajasthan

Joining this movement has enriched my life tremendously at the professional, personal as well as psychological level. This movement works through a network in the organization without tangible boundaries but all the members are cohesively connected. I feel a great sense of belonging to this movement ... has worked a miracle in bringing and holding so many women together for a common cause, that of bringing about positive changes in institutions of higher education with respect to women.

This committee structure makes it possible to bring feedback from the field and to carry forward the decisions back to the field. Their observations are garnered at each workshop, where they are required to be present to facilitate the LC in carrying out her work from the point of initiating application/proposal for a workshop to the UGC for the sanction of the workshop and its successful implementation. They also monitor the quality of the programme. These strategies make constant feedback possible, supplemented by written and oral evaluation by the participants, LCs, and RCs. It is a structure based on effective policy making, planning, and successful implementation, which is kept functional most of the year by regular correspondence through e-mails. The committee meets once a year for annual review and planning for the following year. Its success is seen in the constant updating of the programme, making the programme relevant, and carrying out decisions in a timely manner. The methodology of the programme, which is broad-based self-management, in an integrated system of networking, makes for its continuity as also its quality, aided by standard setting through kits for workshops which guide the LC on its organization and manuals for the TAs to transact the content. This allows for maintaining a degree of similarity throughout the country, as well as maintaining quality through the monitoring and participant feedback mechanism.

Making it a Movement and Introduction of the Website

Faced with the burgeoning numbers of having trained about 4,000 women from universities and colleges, we had to find the means to keep in touch with our participants scattered from Srinagar and Sikkim in the north to Tirunelveli and Nagarcoil/Kanayakumari in the south, and from Udaipur in the west to the remote locations of all the seven states of the north-east, including far-flung locations as the Andamans. (However, Daman, Diu, and Nagar Haveli, Nicobar Islands, Mahe, Lakshadweep, and Ladakh are yet to be reached, although a few of them, it is learnt, do not have a degree college.) Hence, so far, every state and union territory (UT) has been covered except the few mentioned above. Several of the universities and some of its colleges have sent the participants, some more than once. With better response

to invitations sent to vice chancellors, the coverage of universities and colleges would be even greater. Every attempt is made to involve institutions identified by the UGC as being in backward regions in the country and our border areas whose faculty have very little interaction with the mainstream institutions, such as those from border areas like Anantnag, Kargil, Baramullah, Sopore, and Rajouri in Kashmir.

Till March 2011, a total of 235 SAM workshops have been held and nine are presently in the pipeline. Proposals are sanctioned as soon as a bunch of them is received. A total of twenty-four ToTs workshops have been held till March 2011 and five more are in the pipeline. As we increase the trainers, the reach out to the universities and colleges increases. Five refresher workshops were also held for the TAs. A total of nine Management Skills Enhancement Training (MSET) workshops will be completed before the end of the financial year (2010–11).

To reach this vast coverage across the country, another strategy, besides face-to-face programmes, was needed to keep them posted on the latest developments and continue our interface with them. Hence, while planning this UGC scheme, we had made provision for establishing a Networking and Information Dissemination (NID) Cell for furthering the capacities of our participants as women managers. It was felt that after the training programmes, the participants needed further inputs, especially informative materials and reading references that would keep them updated and enhance the quality of their performance as TAs and managers. Several participants want advice especially related to their career trajectory. A mentoring programme needs to be started on the website with a panel of well-selected mentors. Hence, the need for a website to give the necessary continuity and backup to the programme became a requirement. One-time and short-term training provides exposure to basic concepts, but academicians and higher education managers have the capacity to continue and enhance on their own initiative to learn and develop competence thereafter. A comment from a participant reflects the need for it.

Women's Studies, College,
Mangalore, Karnataka

Thanks for making this site available online. Hope this site will be very useful for the women managers and we anticipate having updates often.

Moreover, this activity of developing capacities in women managers in higher education is not seen as only another scheme of the UGC. As mentioned earlier, it is a movement of women by women and for women. The quote below reflects it:

Office Management, College Vishakapatnam, Andhra Pradesh	The movement is unique in every aspect of true empowerment for women academicians. It made me more professional, increasingly visible and accepted, while adding to my passion for research in the field of women in higher education.
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Such a movement is best sustained through the Internet when possibilities of meeting for developing a fellowship are not possible. The website ugcwomenmanagers.org provides information on the scheme, past and upcoming events, bibliography, programme feedback, and kits, group contact through Google Group, and information on various themes related to women and management. It is constantly updated and improved. Most of it is open only to those who have attended the programme. The (NID) Cell is situated in a host university, the SNDT Women's University in Mumbai. It is funded by the UGC under the scheme and it is supervised and guided by a member of our team.

The Major Learning

The major learning from this programme for us has been the way in which the whole programme has been sustained by a large group of women who make the team, to conceptualize, plan, and deliver the programme with various links in the chain from the National Consultative Committee in the UGC to the grassroots LC who organizes the workshops. As mentioned earlier, this is unlike other committees of the UGC where the policy makers and planners are different from those who implement the scheme. Each RC interfaces with the universities and colleges and stimulates the identified and trained LCs who locate and organize the workshop in their institution assisted by four or five other TAs mostly from other institutions in the region. This teamwork of all persons trained by us has made it

possible to run many simultaneous workshops in the country and has also helped maintain standards since all LCs and TAs are trained for the programme. The key to quality assurance of the programme is the presence of the CGRP and the RC or Sub-RC at the workshop at every programme, at least one or the other and mostly both.

Because manuals and modules have been developed for each topic of the workshop and kits for each of the three types of workshops, each trainer delivers similar content and uses similar methodology anywhere in the country. Similarly, each LC organizing the workshop has a kit for guiding her. Three kits have been developed for each type of workshop, which have detailed content on the method of organization and requirements to be fulfilled in each type of programme such as feedback and reporting formats. These workshop management strategies have been developed to make it possible to maintain similarity and quality in the programme. Much time and effort has gone into the creation of the various manuals, modules, and kits by our members, as well as in the organization of activities for which there has been generous volunteering of time by our ever-expanding team. It is an example of a voluntary movement based on an organized and well-articulated set-up, of which we are very proud, in order to achieve the goal of empowering women in the higher education system to become women managers and promote a gender-friendly environment.

Evaluation of the Workshops

No programme should escape periodic evaluation, even where a feedback mechanism exists, as in this programme. Hence, in 2011, the scheme is being evaluated with the involvement of our organizers and participants. The impact of the scheme will be best known only after we have had the opportunity to complete the study based on primary data collected through a questionnaire sent to all our participants all over the country, as well as using available secondary data. However, informal feedback is often received by the workshop LCs from the participants after they return to their institution even though they have already participated in a formal feedback mechanism. For most participants, these workshops are a unique experience both for content and participative methodology.

Many were unaware of existing gender biases which created a chasm between the opportunities available to men and women in the system. Several said that they would carry the message to their colleagues and students so that they are aware of the patriarchal system prevailing in the home, social institutions, and society at large.

Anecdotal evidence suggests that many of the participants have shown a renewed determination to initiate or complete their doctoral work, to stand for university elections (some reporting success), and apply for senior positions (several reporting success in promotions). They report that their behavioural patterns have also changed. Women have both the motivation and capacities when these cultural biases are recognized by them to avail of opportunities for career advancement in decision making. They also need to know how to make those opportunities happen and not let them go past them. For instance, we now have some women taking on headship which they had allowed male colleagues to avail. A participant from the electronics department of her university let male colleagues take over the headship even when it was her turn in rotation for the headship. After the workshop, she recognized her potential and was motivated to be firm and stand up against her male colleagues when her turn came again in rotation. At least two participants have become vice chancellors of co-educational universities, some have become principals in colleges, at least one the registrar of a technical institution, one a director of examinations, and one the director of College Development Council in her university. These are only some instances women whose motivation was stimulated by their participation in the workshop. The quotes given earlier reflect their own perception of change. In some universities where several women have participated, they have begun to take up women's issues. In one university which was reviewing its Act, the gender bias became the focus of scrutiny and rectification by a participant.

The doors it has opened up also have an impact on students as several have started helping women students with problems or running special programmes for them on gender issues.

Several have reported using the techniques of participative learning, to which they were systematically exposed for the first time in the workshop, in their classrooms or in extension education programmes. Possibly this is a quiet revolution to qualitatively improve their teaching as well as to impact on their institutions to create a more gender-friendly environment.

Psychology University, Calicut, Kerala	My female students used to share with me a lot of experiences of gender discrimination. I used to suggest, 'Don't be sensitive'. Some years ago, I got the opportunity to take part in the SAM workshop of the UGC programme on CBWMHE. I went there with no prejudgements, but the experiences had a great influence on me. I began to open my eyes and look at the realities of my life with an increased sensitivity. It came into my mind as a debatable topic, whether I have to ignore the events and not to be sensitive or be sensitive to the discrimination. It led to discussions, re-reading of events, critical analysis, change of points of view, attitudes, and so on. My team of research scholars worked along with me in this cognitive task. Now we have changed the views of our psychological intervention in the direction of gender sensitization. We usually introduce this in teacher training, as it may extend to generations through the teachers. I have a sensitized team of youngsters to work along with me. Thanks a lot to the master brains behind the capacity-building programme.
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The scheme may have touched many women's lives but 4,000 women is still the tip of the iceberg. There are many women teachers today in the universities and colleges than ever before. We need to catch them at the early stages of their career. Due to the voluntary nature of the movement, our trainers can spare only that much time within the restrictive duty leave to which they are entitled. To impact on several hundred universities and a few thousand colleges will require superhuman effort. Inroads have been made and snowball effect can have further impact as the participants return to their institutions and influence colleagues by their example.

Library Science, University, Lucknow, Uttar Pradesh	The programme is quite effective. I have noticed a change in myself. We had started doing networking among female managers in our university. Being a LC of SAM, I invited most of the female faculty for the inauguration and briefed them about what we are lacking in our university. Now we started taking names of the faculty members for any committees at university level. This sort of networking that we have learned from SAM and ToTs workshops is
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	helping us a lot for making our female managers visible in university committees and other related work. Now we have realized the essence of visibility at the workplace.
English, College, Dharwar, Karnataka	Initially as a participant in SAM then progressing to the ToTs, then being identified and recognized as a Master Trainer, engaging in dialogues with my colleagues from higher education institutions for the last five years, and having dealt with the manual 'Women in Governance' as the resource across all five southern states in India, has instilled in me a new-found confidence to pass on the same energy and motivation to my breed that everything is possible for us to achieve and this has been a journey worth undertaking. I am sure many of my women colleagues from the capacity-building workshops would agree with me that if we see ourselves in the mirror there would be perceptible positive changes in our attitude/outlook/performance as a person/teacher/mentor/before and after having attended the capacity-building workshops.

Goal to Develop a Gender-friendly Environment in Academic Institutions

What is a gender-friendly environment? It has been our mission to promote it at the level of the institution through our participants, as well as promotion of it by the UGC in its own organization and in the universities and colleges recognized by it under the UGC Act for Maintenance and Promotion of Standards, 1956. The National Consultative Committee discussed the need to consider various strategies to decide the best means for promoting gender equity in the university system, based on the UN Convention on the Elimination of all Forms of Discrimination against Women (1979) and our own Constitution upholding gender equality. It is acknowledged that it is institutions of higher education, which must set the pace for such social change. Further, it is felt that it is one thing to motivate women to undertake managerial roles but another to create a hospitable climate so that it is not a long struggle, nor necessarily one of men against women issue. It is the best of both genders that will create equality in the academic system and its qualitative development. The following thrusts

are suggested as the best means of promoting these through the UGC and the university system in the country.

With respect to the UGC, it should:

1. Develop disaggregated proforma for reporting of every scheme and take an annual audit of the same
2. Prepare proforma for universities and colleges for obtaining disaggregated data on undergraduate and postgraduate enrolment, pass, dropout, faculty enrolment, and so on, and monitor the same with necessary feedback. Such data could be the basis for UGC to use it for an annual monitoring exercise. Similarly, disaggregated data are required on teachers, administrative and support staff, and the number of women in decision-making positions
3. Make it mandatory when constituting its own (UGC) committees and the Commission, and also in universities and colleges, to have women in all its committees (more than tokenism), including selection and promotion committees whether there are women candidates or not
4. Continue to promote gender-related schemes in each plan period and aggressively promote these schemes with adequate financial allocation and promotional techniques
5. Impress on the state governments to support these schemes in their non-plan expenditure at the end of the Plan or the UGC should continue to administer them as permanent centrally sponsored UGC schemes
6. Set up a task force to work with subject panels to recommend gender content in every discipline
7. Hold a conference for vice chancellors entirely on the theme of gender issues pertaining to the university system, and continue to have one module on it in every conference since vice chancellors change, including presentation of best practices. The information and issues related to women's studies and the scheme for CBWMHE should be included
8. Facilitate women's studies centres and the LCs/TAs/ participants of the UGC capacity-building workshops to prepare and deliver modules for students in university departments and colleges and develop manuals for the same for sensitization and awareness on gender issues

9. Promote gender audit in academic institutions through NAAC
10. Monitor sexual harassment cases taken up by universities/ colleges through reports to be mandatory and sent to the UGC where a committee of senior persons in the CBWMHE and standing committee of women's studies scrutinize and give feedback to the institution.

To assure that these recommendations are implemented, the Commission may set up a monitoring committee consisting of those women who have been in the field of women's studies and are widely recognized for the same in the academia and those who have been involved in implementing the scheme of CBWMHE. It may also have men academicians who have worked on women's issues or promoted the cause of women.

At the university and college levels, some of the above recommendations would apply, such as:

1. Gender balance to be maintained in the constitution of selection and promotion committees, institution-based committees for planning, policy, and programmes, and in the male-female ratio in the chairpersons/conveners appointed for such committees
2. Key decision-making posts should be open equally to women and men and while nominating to such positions care to be taken to appoint women as much as men, avoid appointing women only to positions considered as 'soft', such as Dean humanities and social sciences, but consider them equally for science, technology, and other disciplines where men might be in a majority
3. Initiate task force groups to integrate gender content in all disciplines
4. Initiate, support, and develop departments of women's studies and recognize it as a discipline
5. Initiate programmes related to women's specific needs, such as crèches for working parents (includes male staff as their wives might work elsewhere where such facilities do not exist); special rooms for rest and relaxation for women faculty, staff, and students; and make full use of UGC schemes intended to benefit women faculty, staff, and students
6. Develop a foundation course on women's studies and offer to students from all disciplines

7. Set up cells for handling complaints of sexual harassment strictly as per the Supreme Court and UGC guidelines, and monitor the same. Wherever there are women's studies departments/centres, these may be involved in the committee. Such cells should also sensitize key officials and faculty on issues related to men-women relationship in the workplace

8. Set up data monitoring system which provides gender audit of programmes and budget/expenditure

If these recommendations are implemented, there would be a sea change towards gender equity and balance. It is for women's groups in the institutions and women's studies centres to initiate these changes. No benefits ever come on a silver platter because they affect the existing power balance. Hence, without a struggle, women cannot hope to see change no matter how sensitive men become to women's concerns. When it affects deeply one's own power and position, it is difficult to lose it. That is why the focus of these workshops is on empowering women and the manuals have been designed accordingly.

Transformation of society is a challenge and when it comes to the gender divide, it is a great challenge. Perhaps, this is a scheme that the UGC has initiated where angels fear to tread! Yet, it is women who have to take up the challenge, each one of us in our own way, but when we are all a part of a network, then strength comes from numbers and from a common cause, and a unified strategy to work towards change. Quietly, without fanfare, this scheme of the UGC is drawing women in academia into the process of transformation, not only to change themselves, but also to impact on their women colleagues and students, and, ultimately, the institutional climate. The UGC has to be fully complimented for its financial support to this scheme and the excellent teamwork of all those involved in the programme. While circulars and urging from policy-making bodies like the UGC can give it the very necessary backup for change in gender equations, or through various policies and programmes, ultimately, it is a large force of women acting in concert that can make it happen. Without a struggle can there be a transformation of society and its deep-rooted attitudes? This programme addresses the issue that women need to take up the challenge to transform society. Perhaps, we are planting the seeds but the saplings have to grow and multiply.

Appendix

List of Manuals for the SAM Workshops

Manual No.	Title	Contextualized by
Substantive Manuals		
I.	Women's Studies Perspectives	Susheela Kaushik
II.	Women and Governance in Higher Education	Kamalini H. Bhansali Harsha Parekh Padma Ramchandran
III.	Women and Academic Leadership	Jaya Indiresan
IV.	Managing Personal and Professional Roles	Indira Parikh
V.	Women and Research	Karuna Chanana

List of Manuals for Training of Trainers Workshops

Manual No.	Title	Contextualized by
Facilitative Manuals		
I.	Facilitator's Handbook	Sudha Rao
II.	Warm-ups and More: A Compilation Activities of Group Building	Mahua Nigudkar Nasreen Rustomfram Arunima Nair
III.	A Compilation of Resource Material for Facilitators	Nasreen Rustomfram Mahua Nigudkar
IV.	Look 'em Up: Resource Material Related to Training and Development—An Annotated Bibliography	Mahua Nigudkar
V.	Database on Women in Management in Higher Education	Pam Rajput
VI.	Bibliography: Women in Management in Higher Education	Harsha Parekh

List of Management Skills Enhancement Modules

1. Stress and Time Management in Institutions for Higher Education, Padma Ramchandran, K.G. Uma

2. Team Building and Decision Making in Institutions for Higher Education Institutions, Jaya Indiresan
3. Recognition and Elimination of Sexual Harassment in Institutions for Higher Education, Karuna Chanana and Reicha Tanwar
4. Communication and Negotiation Skills in Institutions for Higher Education, Nasreen Rustomfram
5. Advocacy in Institutions for Higher Education, Pam Rajput
6. Human Resource Management in Institutions for Higher Education, Ipshita Bansal
7. Information and Communication Technology in the Management of Institutions for Higher Education, K. Hemalatha and V. Uma Maheshwari
8. Financial Management in Institutions for Higher Education, Kamalini Bhansali and Harsha Parekh

Kits for Local Coordinators to Organize Workshops

1. SAM Workshop
2. ToTs Workshop
3. MSEM Workshops

Rama Devi

ROLE OF WOMEN IN SOCIAL CHANGE

Human civilization is gradually progressing and transforming through all tensions, dissensions, and harmony. Since the dawn of civilization, women have been a catalyst of change in different times and climes in the sphere of knowledge and civilization, shoulder to shoulder with men. In a male-dominated society, women have stood up in their relentless crusade against all humiliation, oppression, and torture to establish their position, power, and individuality. Because of this crusade, society and civilization has blossomed and undergone a progressive change. No society can prosper without the energy, co-operation, and talent of women. When man has realized this truth, he has stood shoulder to shoulder with her in this crusade, and as a result, society has prospered step by step. However, over a long period of time, man has adopted different normative misrules to discipline and suppress the woman. Consequently, in the medieval age, as well as in this modern era, we see the commodification of women as an object of enjoyment and practice of superstitions, customs, and traditions to tie them down. As a result, society, instead of marching ahead in the path of development, has been trapped in a quagmire of recession and is becoming sickly, suffocated, and retrograde. This is a deviation from the principle of societal progress.

Fresh ideas and convictions are born in harmony with many new needs and aspirations. It inspires the larger mass of the society and enriches

the gamut of knowledge. When these novel ideas and convictions are internalized and identified with human life, aspiration, dream, and culture, then he plays a vital role in regulating social paradigm.

As the culture and ideals of my parents were opposed to the prevailing customs and traditions of the then society, my life was shaped in a completely different environment. Since then, I have always considered the prevailing traditions, customs, ideas, and ideologies as a hindrance to societal development. I have been fighting them all my life, sometimes alone and sometimes with peers. I have realized that in this materialistic society, wealth and fortune are very insignificant and useless. Hence, irrespective of praise or blame, I should be fighting the reactionary forces and anachronistic beliefs of the society. Even though it has no recognition now, it will be recognized in the social evolution of future.

The initial years of my life were a period of torture under British rule, subjugation along with a gloomy conservative environment of medieval mould. In these environments, society was suffocated due to illiteracy, religious fanaticism, casteism, utter poverty, backwardness, and oppression of the British rule. In such an atmosphere, a new thinking took root. There echoed a voice of struggle and an expectation of change. Inspired by Ukalmani Gopabandhu, 'Panchaskha' came forward to usher in a new era. In such an atmosphere, I was born into a family, which held in high esteem, new ideas and culture. This infused in me a rational mindset and a pragmatic social outlook.

Influence of My Parents

Since his youth, my father Pandit Nilakantha Das, spurned government service and vowed to rebuild Odisha. He joined hands with Utkalamani Gopabandhu and founded Satyavadi Vana Vidyalay. He served there as a teacher. At this juncture, he raised voice against religious fanaticism, lack of culture, casteism, the hoaxes of astrology and horoscope, and ushered in a new concept of humanitarianism based on logic and rationale. For this reason, he was ex-communicated from society. He stoutly denied the Gouda-Vaishnavite belief of extramarital affair between Radha and Krishna in as much as he believed that this caused debasement of the society. My mother, brothers, sisters, and I were deeply influenced by my father's active role in the freedom struggle; his frequent arrests and imprisonment; his efforts in the formation of

the province of Odisha; his involvement in movements of language and literary revolutions in Odisha; his concomitant endeavours in journalism; his bold representation of Odisha's interest in the central legislative assembly; and his admirable service at the time of natural calamities like flood and epidemic. For our father's fight against conservatism in the Brahmin community, he became targets of societal neglect and humiliation. When I visited a friend's house, though her family welcomed me gladly, they treated me as an untouchable as my father shunned the practice of untouchability.

My mother Radhamani Devi, was not opposed to my father's life of a freedom fighter; she was rather a compatriot. She was arrested and jailed while she was picketing in front of an excise-vending zone, with me in her lap, as a true follower of my freedom fighter father. She donated all her ornaments to Mahatma Gandhi and used to wear only glass bangles. She was an active participant in the Non-cooperation Movement. In such a family, even secondary education was not possible, not to speak of higher education. After common primary education, my mother engaged a tutor who taught me and my sisters privately. During the drought of Davar, my mother served tens and thousands of emaciated humanity. She helped and supported many helpless women and stirred in them the hope to keep alive. In her endeavour to rehabilitate them, she formed a Mahila Samiti and commenced a girl's high school at Satyavadi to vent her familial frustration of not being able to educate her children. My mother was a progressive and an empathetic human being.

As a result of opposition to female education and child marriage, the Sarada Act was promulgated. In accordance with the Sarada Act, my father got me married to Dwarkanath Das, the son of Kashinath Das, a student of Satyavadi Vana Vidyalaya. My life took a different shape after marriage.

Marriage and Post-marital Life

I was married in the remote village of Bamanala, frequently wrought by flood and drought. The poverty-stricken people of that area were migrating to Bengal in groups. There was no end to the torture of women, helpless, exploited, and forsaken by their husbands. The hapless women had woeful tales of their agony. I helped my level best to rehabilitate quite a few such women. On the other hand, my educated

husband, who was progressive and empathetic, took some positive steps to re-settle the hapless males. I also consulted my husband on this matter. Hereafter commenced ameliorative measures, one after another. First, he got a high school started by donating his own land. Then he started road connectivity followed by a weekly market to help run the school. The large-scale migration to Bengal reduced after this.

Soon thereafter, my husband left for Puri to pursue legal profession. He was associated with many social and political organizations while pursuing his profession as well. Though he was in active politics, yet he was far away from the present practice and avarice. While he was the chairman of Puri municipality, he embarked on a number of developmental programmes and also started the Municipal High School at Puri. I was also active in my husband's political agenda, while managing the family. My father and his numerous supporters, as well as stalwarts from different political parties frequently visited our house at Puri. While father stayed at Puri, he was host to great personalities like Jawaharlal Nehru (1889–1964), Rajendra Prasad (1884–1963), Godabarisha Mishra (1886–1956), Acharya Harihar, Harekrushna Mahatab (1899–1987), and so on. As my husband was a leading light of the Praja Socialist Party, he was also visited by great personalities like J.B. Kripalani (1888–1982), Ram Manohar Lohia (1910–1967), Ashok Mehta, George Fernandes, Prafulla Chandra Sen (1897–1940), Sarangadhar Das (1887–1957), Surendra Dwivedi, Rabi Ray, Banka Behari Das, and so on. By their interface, our house as well as the entire town of Puri showed a general awareness, surcharged with high emotions. My children and I also got an opportunity to interact with them.

During this time, I was an active member of Nari Seva Sangha and Social Welfare Board, Puri. I used to undertake activities like providing self-employment to indigent women, identifying such women and children by visiting villages and arranging for their education, and health care and distribution of baby food. I arranged for the resettlement of indigent women of Bamanal area in Neelachal Home, where they get education and some type of engagement. I strived to infuse a different cultural and aesthetic mindset in the children of my own family, as well as the orphans sheltered in my family. My unrelenting endeavour was to provide them with a higher social life, setting aside the deplorable narrow, material, and consumerist mindset.

A Different Turn to Life

My husband's sudden and untimely demise made me almost numb with despair. After staying in this possessed state for quite some time, a command came from my inner self to write, write, and write, which restored my mental balance. This inspired me to proceed ahead and I felt that I could survive the ordeal through my creative pursuit. Creation is always intertwined with society and hence, I engaged myself in social service. On the occasion of my husband's first death anniversary, an anthology of poems composed by me under the title *Sakal Tirtha Toh Charane* was released and presented to the invitees.

It struck me that such a programme should not be confined only to revisiting memories, but should reach out to people. The programme was then diversified to include activities like debate and essay competition among school and college students, depositing prize money in poor boy's fund of the same institution, blood donation, eye care, health camp, free distribution of medicines and giving out warm clothes to the poor during winter. All these were done with the cooperation of educationists and intellectuals. Moreover, my daughters had sponsored merit awards for outstanding contribution in the fields of education, literature, art, and social service, which were presented to eminent personalities since 1990 till date, and as many as twenty-two collections of poems composed by me were released in this forum. My poems were appreciated by the guests, readers, and listeners. The forum was recognized as a path-breaking effort in the fields of culture and was highly rated vis-à-vis the pseudo-culture, which had been largely prevalent. Besides, I got three books on fiction published based on the life of three hapless women. I also wrote a book for children on our traditional festivals, while my autobiography and complete collection of poems were awaiting publication.

Meanwhile, through my efforts, an institution, namely, Gouri Devi Sevashram was established to rehabilitate destitute women. These women make incense sticks, papad, and appliqué to earn their livelihood. I took leading role in establishing a Ladies Bank at Puri, and for some time, acted as its president to ensure economic empowerment of women. I still am associated with quite a few social, cultural, and literary organizations and have kept myself active.

Social Taboos and Superstitions

Unless our society is purged of superstitions and social taboos, scientific orientation will never emerge and social evolution will be hedged. In this context, I deem it worthwhile to narrate some of my experiences related to the superstitious beliefs prevalent in our society.

Astrology and Horoscope

I am strongly against predictions based on astrology and horoscope. I believe that they are antithetical to the modern logical considerations and are fictitious. Astrology urges people to aspire for success without industry and, as a result, corruption becomes deeply rooted in the social trunk. It has also become a shield to escape from charges of corruption, which reminds me of an incident during my father's stay at Delhi.

An astrologer had come to visit us to foretell my father's fate, but had to go back with a hard slap on his face. My father held that the movement of planets and stars are studied and determined scientifically in astronomy, but such studies cannot be extended as the basis of astrological predictions, ascertaining the fate of humans. This is why he slapped the astrologer who came to foretell his fortune and told him, 'If you are unable to know your own fate of being slapped here, what can you know and tell about my fortune?' From that day, I lost all faith in astrology or horoscopes. None of my brothers or sisters had a horoscope; neither did we make any for our children.

Penance and Planetary Appeasement

My father disdained penance and appeasement of planets. He would say, 'When two individuals offer a sacrifice to the goddess, whose side would the poor goddess take at the same time? Are these people not embarrassing mother goddess in this manner?'

I used to have colic pain for long twenty years. When it was diagnosed as gall bladder stone, I was advised to go in for operation. However, a well-wisher and elderly relative pleaded with me that I should first appease the planets and then decide on the operation. I humbly told him, 'Uncle, whatever happens is my destiny, isn't it? God has scripted my fate for many days and then sent me to earth. Will

you please tell me, who is greater—God or the planets?’ He replied, ‘No, daughter, who can be greater than God? However, by appeasing the planets, impending evils can be averted.’ I said, ‘If the time of death God has ordained for me is deferred, God will forever be a liar and planets more powerful than Him. Whatever is destined for me must happen.’ He did not proceed further and changed the context of conversation. Fulfilment of one’s aspirations depends on his industry. I do not think it proper to adopt any type of penance or appeasement for success. To me, this is an age-old superstition of human society.

I find that the show of faith on God is on the increase; so also is on the increase of wearing a variety of stones like topaz, sapphire, pearl, ruby, and coral, advised by astrologers and holymen. So wide has been its sweep that even intellectuals, especially political leaders, wear four or five stone-set rings, don lockets on neck, and tie rudrakshya around their wrist. A way out of such superstition is nowhere in sight. Everyone is out to conquer the unconquerable with ease. These practices have an evil impact on an individual’s personality and hence, the society on the whole.

Kaleshi—Possession

On occurrence of epidemics like cholera and small pox, the kaleshi, or the possessed one, arrives at the affected village. According to superstition, the villagers believe that such epidemics are caused when the village deity is displeased with them. The kaleshi, who is believed to be in communication with the divine, acts queerly and declares that to pacify the deity, a particular number of heads need to be offered.

Once my father, his Hari Bhaina (Acharya Harihar), and Dashe Apane (Gopabandhu Das) were sitting together in our house and having a discussion. Meantime, it was heard that near the temple of the village deity Harachandi, a kaleshi had been possessed and was dancing wildly. On hearing this, my father got up instantly, arranged a cane whip, and decided to leave. Dashe Apane sounded a word of caution, ‘Nilakantha, this is a very sensitive issue, go only if you can handle.’ Father smiled at Gopabandhu and left. When he reached the site, seeing my father, the kaleshi turned to more terrifying acts. He pushed the burning wicks of a ghee lamp into his mouth and jumped and shouted asserting that this

many heads from the village would be devoured. My father snatched the cane stick that the kaleshi was holding and started beating him by two canes mercilessly until he was flat on the ground. The kaleshi screamed in pain and fell prostrate at my father's feet. He said, 'Sir, everything is false; there is no god or goddess. When I push the burning wicks into my mouth, they get extinguished. I am not possessed by any goddess. I will never repeat this show.' The crowd dispersed fast after hearing this.

Father then brought the kaleshi home and gave him two rupees to buy a locally made medicine of ghee and shell to get rid of the inflammation caused by whipping. From that day on, kaleshi possession in our area has stopped altogether.

Yet such incidents still continue to occur. At Sainsha Bhagabatipur in Puri district, during such an incident, I unnerved the kaleshi intelligently. After being caught, she feigned unconsciousness and then burst into loud wails. I said, 'From today onwards, you will not be possessed by any goddess and you will not show such false pretences so that everyone will forget about your getting possessed. If that is done, I will arrange a suitable marriage for you.' Thereafter, the girl went back home and her so-called possessor deity Banadurga, also disappeared.

Commands

I notice that even modern lives are influenced by superstitions like 'commands'. The incident of getting a command happened at Parbatipur village near Satasankha of Puri district. News made the rounds that a ten to twelve-year-old girl was curing otherwise incurable diseases through divine commands and was granting wishes. This news spread within a few days and huge crowds began to accumulate to such an extent that the collector had to come and control the chaos ultimately. Later, the girl giving command was caught.

Wish fulfilment

Persons masquerading as holymen have perfected the art of cheating through strange acts. As I disbelieve such practices, a prominent advocate once invited me, keeping a Naga saint waiting for me at his residence to inspire my confidence. I went with my husband. The

advocate had informed me earlier that the flowers given to him by the Naga saint had turned into rice after being placed on the stool of the house deity. When I met the saint, he asked me about my wish and I replied that it was for a child (although by then I was the mother of six children). After hearing my wish, he slid his hand in his bag and started conjuring his tricks as was his wont. But instantly, I held his hand and his conjuring was exposed. Before long, he ran away from the place for safety. This incident changed the advocate's deep-rooted beliefs. However, nowadays, educated and civilized people seem to be more inclined and reliant on such trickstering for personal gain.

Considerations of Vaastu

Like other superstitious practices, Vaastu Sastra also held an equally dominant influence on individuals in the past and continues to do so in modern times. Professionals in this trade are trying many subterfuges to expel evil and fulfil men's cherished desires. The proponents of Vaastu in a bid to expel evil are recovering bones, images, or other strange things from under the earth, where one intends to build a house. For expulsion of evil, they are advising rituals like sacred fire, worship, and sacrifices. These rituals involve substantial amounts of money. One such incident is within my knowledge.

A family wanted to build a new house near mine and they consulted a Vaastu expert. The expert after survey predicted the presence of evil bones under ground and for remedy, prescribed a ritual worth about rupees four thousand. As per his instructions, the courtyard was dug up to four feet, a sacred fire was lit, and four seers of milk were poured into it. Then he recovered four lean bones, which could at best be those of a cat or a dog. On seeing the bones, I was not surprised and said,

Your land was filled by municipal waste and hence these could be bones. You know such bones were also recovered from our house. As we know the cause, we built our house without fuss and rituals. Now what makes you surprised on recovery of bones and why are you keen on giving thousands to Vaastu experts from your bank loan of twenty thousand rupees?

After the Vaastu expert performed rituals, the head of the family started to construct his house. However, the result of expulsion of evil

was quite pathetic. His mother expired while the roof was cast; his young son breathed his last while the first floor was being built, and finally, his widowed daughter-in-law left for Cuttack, letting out the house. Although Vaastu does not have a scientific base, still educated people show their preference for it rather than modern engineering. The installation of a laughing Buddha, or a coin-biting frog, or placing an inverse Ganesh are considered to bring about good fortune.

Untouchability: A Social Evil

My mind has always revolted against untouchability. It has a far-reaching impact on one's family, relatives, and our society overall. Even I have lent support to marriage between Brahmins and other castes.

My Sense of Aesthetics and Superstition

The modern outlook of my parents and their struggle for life influenced my sense of aesthetics to a great measure. I have never been able to confine myself to a narrow sphere of life. I have always longed for a higher and greater sphere of social existence. My dreams and aspirations, as well as feelings of sorrow and happiness have always reflected differently. I have seen and felt the pains and sufferings of women much more than I have heard about and tried to the best of my ability to ward them off.

However, the cultural mindset that had blossomed during the freedom struggle vanished after Independence. Cultural erosion is fast driving our society to a chasm of disaster. The culture and value systems of the past have been replaced by a culture that encourages the emergence of beauty parlours, night clubs, sex, and the inclusion of sex education in the school curricula. This has made me sufficiently anxious and apprehensive.

My aesthetic mindset inspired my children, friends, and relatives. I prohibited my children from visiting movies of low taste, while they were at school. I oppose the dowry system. Our family's motto was to lay stress on higher education and personality development of daughters rather than marry them away with dowry.

Child Sacrifice to Human Sacrifice

As modern civilization progresses, superstitious beliefs have become more rooted in the human mind. I heard of the old practice of human sacrifice in turmeric fields and child sacrifice before constructing big bridges and buildings. Even today, in order to accomplish their wishes, prominent socialites have been resorting to heinous acts like child and human sacrifice, owing to the mushrooming of gurus, babas, religious mothers, and possessed entities. News of child sacrifice pour in from different corners of the country and it is heard that using a napkin soaked in the blood of a sacrificed child prolongs the period of occupation of a high position. At a time when voices are raised to stop animal sacrifice, the cruel system of child sacrifice remains an ordinary matter for socially prominent persons. The infamous community child sacrifice in Noida, Uttar Pradesh has tainted India.

Singing bhajans (devotional songs) and organizing devotional music shows have become big business. I have always voiced my opposition to such obscenity, either through my poems or in public meetings. I had joined an agitation sponsored by a social organization against devotional songs, which made obscene implications while singing the glory of Jagannath. The organization also filed a writ petition on the matter at the high court and I was a party to it. In consequence, some cassettes containing obscene bhajan numbers were burnt.

To me, beauty of a woman lies in her innate virtues and that constitutes her identity. Her virtues add to her sense of self-esteem. They also prevent her from exposing herself in provocative make-up and attire. There is no doubt that organization of beauty pageants have become a global business. The woman is made an object of business, which debases culture. Hence, I oppose such contests. Protesting against beauty contests organized by Glory Fest, at Puri Municipal Bhawan, I withdrew support from the organization.

I also joined the protest organized by Shovaniya Anusthana (organization for restrained culture) against obscene films, low-taste album music, and nude advertisements.

The treatment meted out to children is often shameful. Female foeticide has presently assumed the proportion of an epidemic. It is extremely disheartening that in our society, minor girls are often engaged

as domestic help and then they are molested and even murdered. What more heart-rending could it be?

Religious Discourse

Now-a-days, religious discourses are inundating human life. The preceptors and organizers of such discourses are toiling hard to alleviate the society from debasement, as they claim. The discourse programmes are organized with all pomp and show, sometimes with the help of donations and more often by extortion. Devotees believe that these preceptors will lead them to a path of peace, liberation, and fortune. Instead, the preceptors have made this task a lucrative profession. It is a matter of anxious regret that despite the best efforts of the preceptors and the organizers, the plight of the numerous devotees is that they are not purged of corruption, sin, or pain, rather, they get more involved in them.

Once Braja Chakori Devi of Brindavan had come to Puri for a discourse. Thousands thronged to Saradha Bali to hear her discourse and the programme went on for about a week. A friend of mine, the wife of an industrialist, once met me and asked, 'Have you heard the wonderful discourse of Braja Chakori Devi?' I said, 'No, I have not gone.' Surprised, she asked, 'It's been five days, you haven't gone? We all are going every day.' I asked with curiosity, 'What discourse is she giving? Why don't you explain it to me?' Looking at my curiosity, she replied, 'How can I explain to you what she is discoursing? I have not understood myself. You know me. Can I understand all the lofty ideas that she is mentioning? However, she has taken fat donations from us.'

Modern Babas and Babaism

A new tradition of Babaism has completely engulfed our society, just like terrorism and Maoism. That is why, a number of babas are heard of now-a-days. Their character and activities have been flashed in the various newspapers. It is amazing that when many babas have been impugned in numerous criminal activities, how they can be accepted as preachers. It is even more astonishing why today's educated and highly qualified persons are madly rushing for them!

The reason might be that the devotees themselves have become a medium for unscrupulous activities. Therefore, in this modern era, Babaism is another name for hedonistic luxury. Instead of making individuals feel contented about one's life and existence, they lead society to the path of debasement. So strong is the extent of their influence that they are able to allure the illiterate, simple women folk to sacrifice their wealth, character, and even their own children.

Long years ago, I had heard from my father that a youth from Ganjam had reportedly fled home to Vrindavan to become a baba. Unable to deny his father's humble request, Dibakar Patnaik, my father's friend from Ganjam district, reached the *math* at Vrindavan where the youth was staying. Within two to four days of his stay at the math, he came to know that every night the handsome young Mahanta got served by a young Mata, also an inmate of the math. Aghast, Dibakar Babu asked the Mahanta, 'You are a Mahanta, a sanyasi, a baba, but looking at such activities of yours, I feel you are involved in lecherous practices.' Pat came the smiling reply from the Mahanta, 'You don't know the healing power of the name Krishna. All the sins that one can commit in one's life, cannot measure up to the punya that one earns by uttering "Krishna" just once.' These babas are defiling the ideals and dedication laid down by great religious personalities like Shankaracharya, Vivekananda, and Sri Ramakrishna Paramahansa.

The images of freedom fighters and their struggle still lurk on the dusky horizon of my memory, though I witnessed them when I was only three. It seems I fancied myself as a freedom fighter since I belonged to a family of such fighters. On the second anniversary of Independence, while a procession marched past a bright sunshine, with slogans hailing Independence, I had proudly lifted my ten-month-old son and showed him the thronging humanity with the words, 'Look my Treasure! You are the citizen of a free India.' We were then exuberant with joy as independent citizens of an independent nation. However today, I mournfully witness its waning flamboyance. Indiscipline, corruption, cultural bankruptcy, and perversion have pushed us again towards murky desert where there is no shade of virtue. Today's man is no more a man of socialistic thoughts. Mahatma Gandhi's socialism has been transgressed. Today there exists only the 'ism' of aggrandizement. We fail to realize that life is not merely a balance sheet of profit and loss; life is a great stream of consciousness, it is an expedition for the welfare of human society.

Primitive man had fought against darkness to establish our civilization. However, we have only defiled this civilization. My soul stirs with uneasiness by the pangs of this erosion. The Buddha probably wished salvation from such an environment of debased values. However, I have still not lost hope. My faith in the creative consciousness of man is unshakable. This hope and belief inspires me to march on and look for a better future.

Naina Lal Kidwai

RURAL INDIAN WOMEN

sowing the seeds of social transformation

When you come across terms like 'women's liberation', 'gender equality' or 'glass ceiling', in all probability you will visualize a young modern woman holding her own in a competitive corporate environment, maintaining a balance between her work and life, and being a woman of substance. While this image may not be entirely misplaced, there is a large section of women in India, who are gradually breaking the mould and transforming society in a quiet way.

Despite a massive migration towards urban areas, 68 per cent of the Indian population still resides in rural areas. This means close to seven out of ten women in India live in rural areas. It signifies the importance of empowering these women to bring about a positive social change.

A woman's role in the predominantly rural sectors like agriculture, forestry, animal husbandry, and education cannot be overlooked. Today, as women begin to augment household income, the attitude towards working women is changing. Slowly, but surely, women are finding their place in the workforce.

Women working in the unorganized sector, who are self-employed or home-makers, may not contribute to the gross domestic product (GDP) numbers, but their contributions have been considerable. Most of their jobs are manual, unskilled, and low paying but they provide a

huge boost to a typical rural household income. Moreover, these women play a major role in shaping and uplifting their family, community, as well as society as a whole.

Whether it is about tilling the fields, running a cottage industry, or teaching in an anganwadi, rural women have the power to transform society in their own unique way. I believe that rural women, today, have a stronger voice in the village owing to a number of changes taking place in the past few years. Some of these changes are visible through instances like those mentioned below.

Green Conscience Keepers

Women have played a pivotal role in creating a green and clean environment. The Hongkong and Shanghai Banking Corporation Limited (HSBC) partnered with a local non-governmental organization (NGO) in Gujarat to work in five villages of Dahod district for the enhancement of rural livelihood of 400 families through environment friendly development interventions aiming to mitigate climate change at a micro level. The project entailed innovative work in the area of climate change, land regeneration, natural resource-based livelihood and income generation, carbon sequestration, and overall improvement in the local economy.

The activities were a combination of land development by increasing green cover in wasteland and farm bunds; income for rural communities through agro forestry (completely managed by tribal women from the area); vermicomposting (development of organic manure using earthworms); fruit orchards/horticulture, floriculture, and vegetable cultivation.

These initiatives resulted in the planting of 1,60,000 trees on wastelands, 400 trees by each of the 400 farmers, and the tree cover restoring and improving the eco-system. A hundred vermicompost units produced substantial organic manure to enrich land quality and ensure much higher agriculture yield (one vermiculture pit produces 6 quintals compost which could fetch about Rs 300 per quintal). Also, 100 plots were raised by 100 farmers, which after a gestation period, helped each farmer to earn around Rs 40,000 per year from one orchard of half an acre.

Owing to these initiatives taken by women from the five villages, there was measurable increase in income levels of farmer families, 106.7 hectares of wastelands covered by a total of 1.6 lakh trees matured into a carbon sink; 195.73 tonne carbon dioxide per annum was sequestered. Overall, 400 rural livelihoods benefited from a project leading to positive climatic changes.

In fact, women's contribution has been significant in agricultural and forestry sectors. A sizeable number of rural women are employed in the forests for conservation of green cover. There is also a vital link between effective water management and rural women's role in water conservation. The role of women comes into the foreground as in villages only women fetch water for everyday use. To increase awareness about water-related issues, HSBC joined hands with SHARE in Maharashtra. With HSBC's support, women in different areas of the state created self-help groups (SHGs) to work on innovative structures, such as spring cordoning, bund, underground bund, recharge pond, trenches, and rooftop rainwater harvesting, which helped them gain better access to water resources.

Managing the Household Balance Sheet

According to the Ministry of Labour and Employment, the participation of working women in India has risen steadily since 1981. Contrary to popular belief, there has been a considerable rise in the number of working women in rural areas, especially when compared with urban cities. The data from the census of 2001 shows an increase of a mere 1.81 per cent between 1991 and 2001 in the cities. Whereas, the rise was higher in rural areas in the same period; it rose from 27.20 per cent to 30.98 per cent, an increase of approximately 4 per cent. These figures suggest that women are increasingly joining the workforce, thus increasing the dependence of rural families on a woman's income.

According to a study, the income generation under Development of Women and Children in Rural Areas (DWCRA) has seen an overall increase in the average income of a rural household. The sum total of a rural family's income from all trades adds up to Rs 2,989 per annum. So if a rural family is engaged in dhoti weaving it earns Rs 7,200 and Rs 600 more for undertaking activities like bee keeping, juice- or fibre-

making and preparing shampoo or vermillion. With such increase in earnings, 146 out of 200 village respondents could easily manage to rise above the poverty line. A major portion of this income was contributed by rural women. Similarly, the urban counterparts have witnessed a substantial increase in their household income. In 2008, it was USD 4 trillion and by 2013, it is expected to rise to USD 31.1 trillion.

With more women now earning, it is interesting to analyse their share in household spending. In India, a working woman's household spending is around 44 per cent, whereas the highest number is that of the US, with 73 per cent of household spending being controlled by women. As a whole, both their earning and spending capacity has brought about a notable change in the society.

Increasing Independence

I believe that once a woman steps out to earn her livelihood, she becomes independent, not just economically but psychologically, too. She gains better control over the family's finances and the overall household and thus acquires stronger decision-making powers. Furthermore, research suggests that women contribute a larger share of their earnings for the welfare of their family. A woman usually spends her resources for the betterment of her children, their education, healthcare, recreation, and other basic needs. This kind of spending pattern creates a healthy impact on society as a whole. This tendency emerges even stronger when compared with an average rural man, who may have different priorities in life, which may not always be beneficial to his family. Due to this factor, the independence and earning capacity of rural women is directly proportional to the transformation of the society.

Micro-enterprise and Microfinance

Credit provided by various banks and microfinance institutions has changed the lives of several women all over the world. In fact, many countries in Latin America and Asia have numerous microfinance institutions catering to the needs of millions of entrepreneurial women, helping them become self-employed. I am in favour of creation of microfinance opportunities in rural areas in our country as it provides women with the requisite financial resources to start their own venture.

This, in turn, helps them gain confidence to step out into the world and create their own identity.

I can't help but mention a feisty lady, who managed to hold her own despite the odds stacked against her. Gauriben, a barely-literate woman from a small village in Gujarat, a young mother of two, lost her husband. In a flash, the responsibility of her entire family landed on her shoulders. In such circumstances, making ends meet was a challenge. To add to her woes, her community had a parochial and conservative approach towards widows, one of which was preventing them from gaining employment. Also, if she could muster the courage to venture out to work, there was no support system to take care of her children.

Despite these obstacles, Gauriben married her daughter into a good family and learnt to read and write. Her hard work paid off: she is now the proud owner of a small house and a patch of fertile land, which she tills. Today, Gauriben is a village leader in Self-Employed Women's Association (SEWA) and a role model for many women. If microfinance opportunities succeed in creating more women like Gauriben every day, it will go a long way in placing rural areas on the fast track of economic progress.

Business Opportunities

The introduction and development of local industries has enabled rural women to participate in agricultural and local production activities like handicrafts. Their contribution to the household income has had a positive impact on the GDP numbers too. To aid them further, the government of India is promoting micro entrepreneurship in all states. This has led to the emergence of many women entrepreneurs in remote, smaller regions. Moreover, these entrepreneurial initiatives have successfully contributed to the GDP, which in turn, has supported the Indian economy to a large extent. This impact is driven by the need for rural women to employ their entrepreneurial skills in different work areas and gain employment. A need for this is strongly felt among women from the villages, as they are in search of an additional source of income. The economic impact of this new class of employed female population from rural areas is not only empowering women, but also guiding society in the right direction.

Corporate Partnerships

The Fabindia model is a great example of how a corporate can encourage employment at a rural level. By facilitating the setting up of SHG-owned companies, from whom Fabindia buys and continuously provides training and design inputs, a win-win situation is developed where both the corporate and the women benefit.

For a number of years, I have been closely engaged with Grassroots Trading Network for Women, an NGO promoted by SEWA, which has helped SEWA members forge relationships with corporates. Hindustan Unilever trained these women to distribute and pack products. The rural distribution network of SEWA, RUDI, was born, and today, members of SEWA earn money, distributing products across their villages, packing some of their own grown seeds and spices and earning money through their sales. ITC provided skills and inputs in order to enable these women to achieve norms, which allowed ITC to buy from them. This helped women to earn Rs 2 per kg extra and introduced consolidation and other standards to a wide constituency. Other successful partnerships have included Usha Sewing Machines and Hero Bicycles.

Higher Education

With rising exposure and access to higher and better quality education opportunities, today's rural woman can make informed decisions. She can have a say in important financial matters and play an active role in the well-being of her family. The saying 'Educate a woman, and you educate the whole family' is absolutely true in this context because a woman not only uses her knowledge for the betterment of her family, but also passes it on to her children and other family members.

My personal experience with an organization called Manndeshi Udyogini, a rural business school for women and SEWA helped me understand the importance of education in the lives of these women. I feel that lack of education and skills was one of the foremost reasons keeping women from achieving financial independence. With a rise in the number of schools and vocational training centres, women in rural areas now have the opportunity to gain knowledge and hone their skills. As a result, we see women from smaller regions in

India becoming engineers, doctors, and even astronauts, which was unimaginable a few decades ago. India is hence fast catching up with developed nations in providing equal education opportunities to girls and boys. Hopefully, we will soon be able to match the record of Southeast Asia, where an impressive 111 girls for every 100 boys are enrolled for higher education courses.

Steps in the Right Direction

The Government of India has taken several measures to create employment avenues for rural women. Many government initiatives like the Right to Education and National Rural Employment Guarantee Act (NREGA) are enabling the marginalized sections of the society, including women in rural areas, to educate themselves and earn a living. In fact, as per the official data of FY 2008–2009, the percentage of women's participation in NREGA rose by almost 10 per cent between FY 2007–2008 and 2008–2009. An impressive 49.33 percentage of the women population from across the country has benefited by participating in the NREGA. By creating the right support systems for them, the government has played a key role in uplifting and empowering women.

In an effort to improve the employable skills of the rural female population, the directorate general of employment and training has set up one national and ten regional vocational training institutes. Through these centres, women from across India can attain skills as well as vocational training. Thousands of women have been trained in these institutes. Additionally, hundreds of women in different states are working in Industrial Training Institutes (ITI). Several women training wings have been constituted across the length and breadth of the country with systems for imparting basic training for skill development for women. The government's national rural health mission and the regional women empowerment programmes have come as a boon.

Technology Liberates

History has shown that the biggest transformation in the lives of women happened with the advent of the washing machine, freeing women in the West from the drudgery of washing clothes and giving them time to pursue other interests and join the workforce. Technological progress has

brought about a dramatic change in the way a job is executed. There has been a considerable increase in the female workforce with the necessary skill set to handle various types of mechanized tools and equipment. As a result, women are gradually foraying in uncharted territories. By gaining professional training on new technologies, women are continually improving their technological skills, due to which they are able to reduce manual working hours and strike a balance between work and life. Moreover, such training is pulling the rural population out of the unorganized sector into organized ones like IT, manufacturing, services, and so on, which offer better chances of stable employment and professional growth.

An example of the need for automation is the case of the women in rural areas where the bucket irrigation system is prevalent which involves manually fetching water in pails for irrigation. Replacing the manual irrigation system with a tube-well irrigation system will cut down a woman's physical effort to a great extent. She can then focus on other aspects of agricultural work and undertake multitasking. The concept of automation and technology is applicable in many other areas of agriculture like wheat grinding, weeding, tilling, and so on. Modern techniques like wheat grinding machines, pesticides, herbicides, and so on can help in bringing down a woman's effort considerably.

The 1960s saw a Green Revolution in the state of Punjab, which ushered immense prosperity throughout the region. Agricultural activities in the state are highly mechanized and the rural workforce, including women, hugely benefits from this. On the other hand, the state of Andhra Pradesh is extremely labour-intensive and is highly dependent on its female workforce for labour-intensive crops like cotton and groundnut. Automation and use of latest technology for irrigation in the state may help women increase productivity and achieve even better results than they are currently registering.

Focus on Women Empowerment

Local governing authorities like the panchayats have begun framing women-centric laws. As a result, more women like Gauriben face lesser resistance when they seek work opportunities in rural areas today. They are also able to achieve independence and generate income more easily. For example, there has been a consistent rise in the number of female

representatives who participated in rural water projects. In fact, these numbers are higher than even their male counterparts. In addition, as the number of elected women representatives from different villages rises, their control over critical financial and social aspects also increases. They will have a stronger say in matters relating to family expenditure, which in turn, will have a huge impact across various sectors like health, education, and infrastructure. Rural women will also help in boosting the workforce in certain areas of the country where the working population is on the decline.

The role of rural women in India's growth story is significant. In addition to their stellar contribution to their family, community, and village, these women have demonstrated their potential to change society and paved the way for a modern, better India. As more Gauribens cross the threshold to discover their identity, they strengthen a major pillar of democracy—the rights of the nation's women and how they vote.

Raj Manda

ROAD TO EMPOWERMENT

It is hard to imagine a society without women. There are mythological stories of societies without men. The Mahabharata has the story of Naripura, a kingdom of women ruled by queen Pramila. Greek mythology has the Amazon country where no men were permitted. There are no such stories about lands inhabited solely by men; not even in science fiction! This should tell us what the place of women in a society is. These stories also throw an insight into the incredible strength and resilience of women. Clearly, women can be vehicles of not just change, but a radical transformation of a society.

For any individual, man or woman, to make an impact, the single most important character trait is a sense of completeness within oneself, which manifests itself as self-confidence, self-respect, and self-sufficiency. That is what is tragically lacking today in a majority of the women world over. It is this realization that prompted a movement to empower women. The general belief has been that empowerment can be achieved through education, employment opportunities, representation in political and other leadership positions, and so on. While these are certainly helpful in alleviating some of the more apparent hardships, none of them completely succeed in making women understand the tremendous inner resources that they are naturally endowed with and can use to create a sphere of influence around them. The influence exerted by a woman who is secure in herself will be like the

ever-widening concentric circles caused by a pebble in a serene pool, each circle building on itself and becoming ever larger and stronger. The reverse is also true—a feeble woman, in spite of having received ‘education’ and other external means of empowerment, will unwittingly be the cause of cascading social deterioration. We only need to look around us a little more closely to bring home these realities. However, there is nothing like a first-hand experience of an individual who has been on both sides of the dividing line.

Age of Innocence

I was born and raised for the best part of my childhood in the tiny villages in the backwaters of Andhra Pradesh. My father was the eldest of six children of a penurious family. My father ran away from home at the age of ten. He drifted around educating himself till he finished high school. Soon after, he got himself a small job in the postal department and took upon himself the responsibility of his parents and his five siblings. My mother was the daughter of an equally impoverished family and her education went no further than the fourth grade. As was the norm of the time and place, she was married off at the age of sixteen, and almost instantly, acquired a family comprising my father’s five siblings and her in-laws, well before four of us joined the crowd.

When I look back on my life, my mother undoubtedly had the most influence on my life—both positive and not so positive. She herself was an unlikely amalgam of two conflicting personalities. She endured, particularly in the first two and half decades of her marriage, tremendous physical abuse from my father. She had to run a household of eleven mouths on a pittance. Yet, I remember very few instances of her expressing a sense of entrapment, dejection, or utter helplessness. In fact, she believed that she had to hold her husband in the same exalted position as God because that was supposed to be the husband’s place in a woman’s life. Yet, she kept giving me mixed messages throughout my life. The first strong conviction she tried to instill in me was that I was supposed to make something more of myself than a mere wife and mother. I remember her saying that procreation is something every living being does without much effort and so that cannot be my sole purpose of life and that I needed to think beyond marriage and children. However, she would hasten to qualify that I cannot shun

my duty as a woman and a woman's life is never complete without a husband and children irrespective of whatever else she accomplishes.

The only message my father kept drilling into my mind was that I needed to attain the highest possible degree and then proceed to amass a fortune. He insisted me to be at the top of every class or else face grave consequences. I can only describe the first three and half decades of my life as psychological wilderness, with no clear sense of awareness, direction, or purpose. I just tried to live up to the expectations of everybody around me.

My entire schooling took place in a few villages, which had no exposure to the world beyond. I finished high school with the highest honours and attributed it to the fact that it was a tiny village school and then there was my father grilling me every single day after school, often with the use of a cane. I truly believed for a very long time that I had zero spark of intelligence and the only reason why I excelled in academics was the Damocles' Sword held by my father over my head. Fear and inferiority complex were the dominant companions throughout my entire academic stint. As I graduated from the village school to a college in town, thereafter to a university in the city, then to a premier research institution in a metropolis, and finally, to a university in the world's only superpower, I kept feeling like a small fish from a small pond entering into larger and larger oceans replete with bigger fishes, every one of them better in every way than me. Even though I am much better now because I have trained myself not to measure myself in terms of academic or any other kind of performance, I still have unguarded moments of inferiority, inadequacy, and self-doubt. It takes constant effort and a lot of support from many quarters to have the right kind of self-awareness. This may be true for both genders, but much more so for women because women in the world over are plagued and bombarded by covert and overt messages that either commoditize them or pigeon-hole them into certain roles.

Age of Ignorance

Throughout my schooling, I was never taught to ask myself why I am choosing a particular course of study, whether I had a passion for it, what I am going to do with it, or whether and how it was going to enrich my life. I just did what my father wanted me to do like an indoctrinated cult member because it had good 'prospects'.

I entered into married life the same way. When my husband proposed to me, all I could think of was what my mother used to say—at one time or the other, I needed to get married and of course the fact that I liked my suitor very much was certainly helpful! At the age of twenty-two, I did not know the most fundamental questions I needed to ask myself before making such a momentous decision—whether it was the right time—less than two years to completing my doctorate in biochemistry from the most prestigious institution in the nation—the rarest of rare opportunities for which I worked really hard. I did not know what I wanted out of the marriage or whether our individual aspirations were compatible, or what compromises need to be made for a harmonious life, or whether and when we would like to have children; in a nutshell whether I was ready for the marriage; nor did I have anywhere to turn to for guidance..

With a misguided sense of virtue and a melodramatic and cinematic thought that I was sacrificing my career to accommodate my husband's aspirations, I quit the doctoral programme at Indian Institute of Science (IISc), Bangalore and accompanied him to where he started his career. I started working in a nationalized bank to put my 'education' to good use. In an era of closed economy with the public sector enjoying the luxury of total irresponsibility and incompetence, the job was mind numbing, albeit financially rewarding.

Ten years into the marriage, with two young boys at an extremely impressionable stage of life needing all the guidance they could get, particularly from the mother, who is supposed to be the very first mentor and teacher in anybody's life, a husband working hard to make his mark in the world, I slowly grew into the biggest liability any family can ever have in spite of my 'education' and financial independence. I felt that I was a failure because according to my father, I didn't complete my doctoral degree; nor was I on the road to amass a fortune. I blamed my husband for that failure, refusing to take personal responsibility for my own decisions and actions and without even knowing whether that is what I really wanted. I clung to him like a dead weight, nagging him to do something, anything to help me succeed without having any clarity as to what that success was or what would make me happy and productive. Looking back, I wonder at my husband's tremendous strength of character that helped him make signal contributions to science and education despite the onslaught. I cannot also help

wondering how much more he would have probably impacted the society if he were not burdened so.

Coming of Age—At Last!

Something had to be given and that something was the decision to join the University of Florida in the USA for the PhD programme in biochemistry and molecular biology. I believed that getting the PhD was the panacea for everything that was wrong in my life. My husband was gentle as always, but firm about his own course of action. His country invested in his education and it was only fair that it should reap the benefits of that investment. He was completely clear about what he wanted to do with his life. He was perfectly happy with the way his work was progressing even though the pace might be greater in the developed world. He would continue to work and live in India and be my soul mate across the continents. Even though he was the most affected, he was the sole supporter of my decision. I suspect that he realized that if there ever was any chance of my growing up into a rational individual of any use, it had to be this! I left for the USA along with our two sons aged eleven and six years amidst assertions from everyone we have ever known that I was doing something completely wrong, unpardonable, and utterly un-Indian woman like. However, it proved to be one of the best decisions of my life even though it was made for all the wrong reasons.

I did earn my PhD and also MBA immediately afterwards. It was a long struggle, trying to cope with my as well as my children's educational and other demands. But it was a struggle that I came to enjoy immensely because it was also a road of revelations about ME! It was a time of introspection and internal debate. It was a time when I was completely ruthless to myself and refused to take refuge in all kinds of excuses. It was the time I finally accepted responsibility for my actions and the consequences of those actions. It was the time I defined to myself what my success was going to be like. Above all, I decided that I was never going to be weak and parasitic either physically or emotionally.

However, such changes did not occur without help or suddenly in a single day! I took advantage of the wonderful public library system. It is the most invaluable treasure trove with every conceivable resource available to everybody, completely free of cost and in abundance.

There were books of every genre—printed books, large print books for those with weak vision, audio books, complete audio courses from the professors of Ivy League universities across the nation on topics ranging from classic literature to emerging technologies, videos, DVDs, music, and much more! I read voraciously—while driving, while cooking, while cleaning, while walking, and every single minute that I was not in the laboratory or spending with my children. I never gave a thought to exercise and physical fitness in all my adult life in India. University of Florida had the most sophisticated gymnasium free of charge for its students. I exercised religiously and won the endurance contests every year. I ran 10 km races. The boys and I raised funds for March of Dimes, a foundation for the prevention and research of birth defects and participated in the annual 12-mile walks. I did the 60-mile Avon Breast Cancer walk during which I met some amazing women and had great fun. I volunteered in the children's schools and the communities I lived in. I hiked the Grand Canyon alone and came face to face with a black bear! I took 1000-mile drives, hugely enjoying every minute. I became a very active member of the Toastmasters International. When presented with an opportunity, I spoke for twenty minutes about what America can learn from India to a 400-strong crowd, largely of a generation, which believed that America could do no wrong, and received a standing ovation. I started working in the tissue banking industry after completing university education. I infused my own conviction of rational and evidence-based marketing into my marketing work and I believe that I have raised the bar for marketing practices in that industry.

It has been indeed a period of self-discovery and personal growth; a process of gradual metamorphosis, finally bringing me to a place and state where I like to be at and truly empowering me to enrich my own life and those of others that I come into contact with. The proof, of course, is in the pudding.

Reaping the Rewards

Just as charity is supposed to begin at home, I came to believe that the immediate sphere of influence of a woman is her home and family. Too often, I hear women saying, 'I am just a housewife', grossly trivializing or not understanding the seminal responsibility she holds in that position. A housewife is not a mere housekeeper, which seems

to be the general understanding in our society. Parents, especially the mother is the very first role model in a child's life and continues to be so for the girl child for a very long time. Parental guidance and support play a critical role in shaping every aspect of an individual's life and influence on the society. The most common laments we keep hearing are about the complete breakdown of communication between adolescent children and parents and the decline in the value and moral standards of the generations X, Y, Z, and so on. The blame is laid at every doorstep other than where the malaise originates and takes firm root—the home and family! It takes extraordinary effort and tenacity to escape the early impressions and mould oneself into a radically different personality. Very few succeed at it.

Taking a leaf out of my own early years, the very first personal change I worked on was the way I looked at my role in the lives of my immediate family. Helping our sons grow into mature, self-reliant individuals pursuing their own passions, and making positive contributions to the society around them took due precedence in my priorities and rewarded me richly.

Especially gratifying to me is when my husband brainstorms with me on issues that he needs to look at from different perspectives while making crucial decisions. I know that I am not a millstone around his neck by being pathologically dependent on him as I once was. I now choose to depend upon him because I derive pleasure from it. Now the support is not unidirectional, but mutual. I want to believe that freed from the invisible shackles and reinforced by the support, he is able to devote more of his energies to his growing body of work in the cause of improving the quality of higher education in India.

While continuing to alternate living in India and the USA, I take every opportunity to counsel students in India about what should guide their career choices and how to set priorities. I counsel young women about the need for physical and emotional strength and to find avenues to achieve that strength within the confines of their circumstances. I try to mentor a couple of young men and women at any given time, providing them academic and life skills advice, guidance, and so on. I provide feedback at appropriate forums on the measures that may be taken to make education holistic and insist on character building rather than individuals becoming mere tools for earning one's daily bread.

One of the projects that I enjoyed most was the work I had done at the University of Pune involving 'Earn While You Learn' students. This scheme was implemented by the university to help needy students pursue education. Instead of doling handouts thus inculcating a sense of entitlement, the university recruited the needy students for minor jobs around the campus like tending the university gardens, helping around the library and administrative offices, and so on. They were expected to devote a few hours a week and were paid remuneration. While they liked the money, most participants were mortified at the idea of doing 'lowly' jobs. To enable them overcome their inhibitions, I wanted to do something interesting and innovative. I also have deep loathing for the complete disregard Indians have for their physical surroundings. To my mind, it is particularly unforgivable in places like university campuses, which are supposed to be the abodes of highest learning. Hence, I initiated the 'Campus Cleaning Campaign' to achieve the dual purposes of instilling a sense of pride in the work we do irrespective of the nature of the work and bring about a shift in the way we treat our environs. Every alternate Sunday, I invited student volunteers to join me and my husband, the then vice chancellor of the university, to pick up trash from the campus for a couple of hours at the end of which, we would gather and discuss over a well-earned cup of tea how this symbolic gesture should cascade into a mass movement. The campaign was a huge success with students vying with each other to keep their hostels neat and clean.

Another cause that is very close to my heart is professionalism and interpersonal communication skills. Rendering service with a smile, maintaining good work ethics, striving for excellence, enthusiastic to learn continuously, and so on, have become rare traits across all occupations. Similarly, lack of communication skills has become a very common complaint amongst employers clamouring for competent workforce to take advantage of the burgeoning economy. Several studies estimated the employability of graduates and postgraduates being spewed out by both public and private educational institutions at 10 per cent or less, the main shortcomings being poor communication skills and professionalism. I try to use novel and non-traditional methods to help my students with these issues. During my stint as the marketing professor and director at the International Institute of Information Technology (IIIT), I founded the first Toastmasters Club of Pune, which helped scores of students overcome these disabling deficits.

Some of the things I did purely for my own pleasure in this new avatar turned out to have some inspirational value. Pandharichi Wari is a glorious annual tradition of the state of Maharashtra. More than a million devotees make a pilgrimage on foot from Alandi to Pandharpur, covering the distance of 250 km in about three weeks. In 2005, I joined a group of National Service Scheme (NSS) students from the University of Pune in this venture. It was an event, which presented unbelievable wealth of experiences, and I enjoyed it immensely. I met several women from tiny villages all over Maharashtra who were illiterate by the common metrics, but probably could give life lessons at Harvard and Oxford and of course at the Oxford of the East, the University of Pune, Pune. Those women have reinforced my conviction about education in its current format having very little correlation to the kind of individual that a child grows into. Many of my friends and acquaintances who spent their entire lives in Pune but never even dreamt of doing the Wari wanted to join me if I did it again.

The Road Ahead

The woman I was twenty years back, confused and dejected in spite of all the trimmings of women empowerment, standing at the crossroads of life, I feel, epitomizes majority women today. Almost every day, we learn about educated women offering dowry to get married, committing suicide, or getting murdered at the hands of cruel spouses and in laws, being willing or unwilling parties to female infanticide, indulging in alcohol and substance abuse, and so on, in spite of all the laws in place. So, what do we need to do to stem the criminal waste of the tremendous potential of one-half of the nation's human resources? I do not advocate that everybody should experiment with their lives the way I did. It is too wasteful and could be too little too late.

There is neither a definite prescription nor a single channel through which we can bring about a paradigm shift in the way women look at themselves and their roles in society. Academic institutions, mass media, government, social science research, and true community leaders will have to come together to design the appropriate messages and means to dispense them widely and reinforce them constantly. We cannot afford not to make this investment. There is too much potential at stake.

A change, that is radical, far-reaching, and enduring can only happen when it is the sum total of small changes affected individually by millions across the entire nation. Each emancipated woman might succeed in generating only a small microcosm of positive influence in her immediate vicinity, which might be insignificant in isolation and in the broader context. However, when we realize that millions of such small worlds come together to make a nation, we will realize the urgent need for remedial measures of various types. It is indeed in our best interests to act on the words of one of the brightest luminaries that humanity has ever been gifted with Marie Curie (1867–1934):

You cannot hope to build a better world without improving the individuals. To that end each of us must work for his/her own improvement, and at the same time share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful.

I strongly believe that it is the women of the world who can most benefit by the aid, only to turn around and return the favour, a million times over, to make the world a much better place for everybody.

Sonal Mansingh

POSITION AND ROLE OF WOMEN IN THE PERFORMING ARTS

In India, as well as in many parts of our world where ancient civilizations have flourished, and among tribal societies, women are bestowed with the highest honour—motherhood. The following salutation reveals that in India, the mother is placed on the highest pedestal:

Matr devo bhava—Mother is God

Pitr devo bhava—Father is God

Guru devo bhava—Teacher is God

Ateethi devo bhava—Guest is God

A mother is equal to a hundred teachers goes another proverb. It is in the mother's womb that nature enacts a miracle, giving shape to a new life.

The female species is entrusted with the task of regeneration and perpetration, which is essentially a reflection of Prakriti, the Immanent and all-absorbing nature of creation. Prakriti keeps the process and systems going by which creation is sustained. Therefore, women in India has been equated with the Divine—and addressed as Devi (the great goddess)—who in different manifestations fulfils all and every function of life.

In Diverse Roles

A woman is an indispensable entity in all fields of activities. Her support, guidance, and wisdom steer a family through thick and thin.

Her tenacity and emotional stamina are like the rudders of a boat directing life in the right course. As the society in India, is divided owing to differences of religion, caste, language, economic strata, and so on, the contributions of women in our society are stratified and varied too—as householder, skilled or unskilled worker, entrepreneur, teacher, lawyer, doctor, politician, bureaucrat, and so on

In independent India, many avenues and fields have opened providing women with new opportunities. Here I would like to narrow down the vast canvas to the area of arts, particularly performing and visual arts. Women dancers and musicians were integral parts of the socio-religious culture. They performed rituals in temples to entertain and instruct the royal courts and noble households, entertain the commoners, as well as teach the art to their pupils. Sculptures and paintings from temples and rock-cut caves like Ellora, Barhut, Khandagiri, and so on, as well as frescoes and murals of Ajanta bear witness to the importance and significance of performing arts in society. In the era of Janapadas and Ganarajyas like the Lichhavis and in erstwhile Kalinga, the *raja-nartaki* (dancer in royal court) was equated with the chieftain-king and the *raja-guru* (royal preceptor) in her right to the royal umbrella and chariot! From an assured respected position, with time, the female dancer became a poor reflection of the past glory in the following centuries marked by socio-political upheavals and economic deprivations.

In the face of social ostracization

The social status of temple dancers throughout India suffered setback to such an extent that the British, just before their final departure from India passed the Devadasi Act banning dancing at temples. Some Indian reformists joined hands with the unjust treatment and degradation, which the *devadasis* (temple dancers) were subjected to even alleging them being prostitutes and needed to be ousted from respectable places of worship and from society!

This mentality has a direct link to my story of becoming a dancer. In 1961, when my paternal grandfather Mangaldas Pakvasa was governor of Mysore (as Karnataka was so called) my Bharatnatyam guru U.S. Krishna Rao gave me permission to perform my first solo debut, the *arangetram*. I was thrilled and practised even harder until one evening, as I was leaving for my dance lessons, grandfather stopped me and

demanded to know where and why I was going every day. Hearing my answer, he flew into a tearing rage and ordered me to go back to my room. I defied him, sneaked out, and went for my lessons. Having reached there, I shed copious tears, refusing to return to Raj Bhavan despite several calls and the ADC being sent to bring me back. Finally, my gurus took me back home late at night. When I reached home, I found my family seated in glum silence. I fled to my room, locked myself in for two days, refusing to eat or to meet anyone. Finally, I had to relent when my grandfather also refused to eat. He came into my room, apologized (!), and explained why his apprehensions got the better of his affectionate approval of my dance-debut. That was the first time I realized how dancing-girls were looked down upon and suffered from social ostracization.

Yet, in the past, dancers have had enjoyed a firm place in India's history. Not only devadasis but queens like Santala and saintly women like Lal Ded, Meera, and Mahadevi Akka used to dance in spiritual ecstasy. My practice of dance has given me deep insights into the *raison d'être* of the continuous popularity of dance in India. Through dance, women professed love for gods, beauty, and the flow of life. Various social ills and shortcomings could be pointed out in a direct manner, without being sanctimonious and judgemental. Issues of ecology and environment, cruelty and violence, inequality and inadequacy, and other issues of everyday life or those larger than life could be tackled and spoken about in an artistic manner, which the audience could identify with themselves easily.

Voicing Women Issues through Dance

My own experiences of such happenings are numerous. My solo dance-theatre 'Draupadi', at one instance, not only had made 300 members of the Parliament numb and tearful, but also remorseful, as confessed by them later to Speaker Shivraj Patil. Some of them even swore to take up women's problems like rape, torture, molestation, and so on, and sincerely tried to seek justice for them. Similarly, my presentation of the popular legend of Krishna vanquishing the poisonous cobra Kaaliya, who had been polluting river Yamuna, was able to arouse audience sensibility at a global conference on ecology to a pitch of unprecedented tearful ovation.

By making the audience conscious and awakening their conscience through performing arts, retelling stories, songs, parables, and so on, the dancer is able to alter rigid mindsets, fight against unhealthy practices, and eradicate social evils like alcoholism, criminality, and other vices. In this manner, women can shape the course of future transformations and help to establish the rule of 'Satyam, Shivam, Sundaram' making our society a better place to live in.

Kiran Mazumdar-Shaw

WOMEN, SCIENCE, AND SOCIAL TRANSFORMATION

Science is the crucible of human transformation. Pervading every aspect of human existence, regulating and altering the way we live, scientific developments touch every human activity to enhance us realize greater potential. As we apply human ingenuity to science, we perpetually extend the horizon of possibility across barriers, such as language, geography, economic background, and gender.

The pursuit of science has been shaping our lives for the better and benefiting society, at large. A remarkable enabler, as well as a great leveller, science has not only helped shrink the world, but has also made our lives easier. Internet and cellular technology have made instantaneous remote communication over different time zones possible, while advances in aviation have allowed us to transport ourselves physically thousands of miles in a matter of hours. Automation has helped reduce human effort expended on mundane activities, as well as reduced the risk of hazardous activities.

The impact of science has been the most decisive and beneficial in saving lives. New diagnostic tools, treatment options, vaccines, and drugs have enabled early diagnosis, treatment, and eradication of diseases containing infections, improving human health, and prolonging life. Biotechnology, my area of interest, offers the hope of bringing about revolutions in healthcare, agriculture, as well as environmental protection.

We live in a knowledge-based society where our collective knowledge is the foundation of all progress. This knowledge—that science helps to nurture—has no gender. Since the dawn of scientific research, women have played a stellar role in its advancement. From Marie Curie and Rosalyn Yarlow in the West to Anna Mani and Kamala Sohonie in India, women have made vital contributions to the scientific aggregate, helping transform the world we live in.

However, even though knowledge has no gender, the dissemination of scientific knowledge and the professional lives of women in science are heavily influenced by gender. Women constitute half of the population of the world, and yet they are under-represented in science, the force that has such a great impact on our lives. This is dangerous for our society. Not only does it aggravate existing gender inequalities and their socio-economic consequences, but it also affects human development in general. By not supporting women adequately in helping them convert their potential into reality, we are underutilizing a significant talent and knowledge base which we must leverage if we want to progress.

The number of women pursuing careers in science has increased, slowly but surely. However, a disproportionately low number of women are at senior scientific and leadership positions. Women are seen more as scientific workers and teachers rather than scientists. They run into biases even as teachers—a USA government-funded study found that fewer women, who get PhDs in mathematics and science, stay in academia than their male counterparts in the USA.

In India, a national task force set up to investigate the problems of women in science found that though women make up 37 per cent of science PhDs, a large percentage drops out of the workforce. Women are poorly represented in top positions in most science-related government departments and not even one of the thirty-seven Council for Scientific and Industrial Research (CSIR) labs in the country is headed by a woman. Only between 14 per cent and 17 per cent of students at the Bangalore-based Indian Institute of Science (IISc) are women. The percentage of female students in the Indian Institutes of Technology (IITs) is a paltry 10 per cent.

I am not suggesting that we adopt a policy of affirmative action. However, we do need to act to overcome the socio-economic barriers that continue to block women's participation and progress in science. In a country like India, these gender barriers start operating at birth,

shaping both women's perception of themselves and society's expectation of their role. There are hurdles in the shape of the inaccessibility of science education in rural areas and overall restrictions on the education of the girl child. The societal mindset that women are less capable of understanding science and mathematics is also highly detrimental. She faces additional issues in the form of the system's inflexibility that places a high threshold for re-entry into the workforce after a break to raise a family, apart from gender-based inequities at the workplace.

Despite being largely excluded from scientific endeavour, women have made highly impactful contributions to various disciplines, ranging from physics and chemistry to medicine and biology. A few of their contributions have been discussed below so that we may be better placed to explore the issues they face in science.

Women Scientists and their Impact

From Merit Ptah—an Egyptian living in circa 2700 BC who is perhaps the earliest woman cited in the history of science—and onwards, innumerable women scientists have made discoveries and advances in a wide area of sciences. They have faced barriers through time, with their contribution being rejected or ignored on account of their gender. Biases range from assumptions that the female brain is physiologically incapable of coping with mathematics and scientific experiments to actions such as being barred from scientific societies to encountering views that women are an inferior gender by nature, suited only to play a domestic role.

In spite of such barriers, women have always soldiered on for scientific progress. It is unfeasible for me to address the contributions of all in this article. However, I will touch upon the impact of a few women scientists I admire. Their lives celebrate the triumph of discipline, hard work, and knowledge in the face of personal and professional odds.

Three examples from the West

The first scientist I would like to focus on is Marie Curie, perhaps the first woman scientist we had heard about as a child. She is famous for her pioneering work in the field of radioactivity for which she won two Nobel prizes—in physics and chemistry, which helped pave the way

for nuclear physics and cancer therapy. She was a pioneering woman scientist who had overcome barriers that were placed in her way because of her gender. In 1911, the French Academy of Sciences refused to abandon its prejudice against women and she failed by two votes to be elected as a member.

Rosalind Elsie Franklin was a pioneering chemist and crystallographer who made critical contributions to the understanding of the fine molecular structures of DNA, RNA, and viruses. Franklin was responsible for the research and discovery work that led to the understanding of the structure of DNA by Francis Crick and James Watson. Watson, Crick, and Maurice Wilkins were awarded the Nobel Prize in physiology and medicine in 1962, four years after Franklin died. The Nobel Prize rules limit the number of persons for any award to three, and also limit the award to those who are still alive, so Franklin was not eligible for the Nobel. Nevertheless, she perhaps deserved explicit mention in the award and needs to be remembered in history as the premier contributor to the discovery of DNA's 'double helix'.

Another remarkable scientist was Rosalyn S. Yalow, a medical physicist, who worked in a male-dominated field to become the only second woman to earn a Nobel Prize in medicine. She graduated from college at the young age of nineteen. However, she struggled to be accepted for graduate studies. Appointed as a teaching assistant, Yalow was the only woman among 400 faculty members. When she received an 'A' minus grade in a laboratory course, the chairman of the physics department said the grade confirmed that women could not excel at experimental work; the comment only hardened her determination to succeed and prove herself. She went on to build a great career in medical research. In the 1950s, she became a co-discoverer of the radioimmunoassay, a sensitive way to measure insulin and other hormones. The technique made possible major advances in diabetes research and in diagnosing and treating hormonal problems.

Two Indian Women Scientists

As schoolchildren in India learn about pioneers in science from the West, it is perhaps time we start introducing our younger generation to the contribution of Indian women scientists. Such examples will be highly influential role models for young women in India looking to

pursue a career in science. More often than not, women scientists in our country have had to overcome deep-seated societal prejudices and pressures to attain professional repute, often at the cost of their personal lives. Their success and accomplishments can help motivate young women scientists and students that women can do anything if they set their minds on.

In this regard, I wish to briefly discuss two women scientists—Kamala Sohonie (renowned biochemist) and Anna Mani (meteorologist), former deputy director general of the Indian Meteorological Department (IMD).

Kamala Sohonie was the first Indian woman to get a PhD in a scientific discipline. She carried out biochemical studies on three major groups of food items and did her BSc from Bombay University. A university topper, she applied to the IISc, Bangalore for further research. She was denied admission, because nobel laureate Sir C.V. Raman, did not want women scientists. She went to Bangalore to meet him and convinced him to admit her to the course. However, she was not accepted as a regular student. Sohonie completed her course with distinction and got admission to Cambridge University in 1936. She went on to make a fundamental discovery in plant biochemistry—that all plants had a common protein binding, which won her a doctoral degree. She returned to India and established the biochemistry department at Lady Harding Medical College, Delhi, and also became the assistant director of Nutritional Research Laboratory at Coonoor. She then established the biochemistry department at the Institute of Science and headed it for the next twenty years.

Anna Mani made significant contributions in meteorological instrumentation and pioneered research in solar radiation, ozone, and wind energy measurements. In 1940, she won a scholarship to do research at the IISc. She was not granted a PhD despite publishing five single-author papers on spectroscopy during her time at the institute. She was awarded a government scholarship for an internship in England, where she specialized in meteorological instrumentation. Returning to India, she joined the IMD at Pune, where she was in charge of the construction of radiation instrumentation. She published a number of papers on subjects ranging from atmospheric ozone to the need for international instrument comparisons and national standardization of meteorological instrumentation. She retired as deputy director general of IMD in 1976.

Women in Science: Overcoming Challenges

All over the world, and in India, women are changing how they perceive themselves. They are realizing that they can succeed as well as their male counterparts in any field they choose to pursue. Their success is not the result of a one-off effort, but a continual, persistent process of building on each succeeding success to reach that next milestone. Women are endowed with certain innate qualities like compassion, sensitivity, multitasking abilities, and inner strength that women scientists leverage to make a difference to themselves and those around them. However, it is imperative that women have family support and cooperation to succeed. For this, we must work to transform social attitudes that have not kept pace with women's rights and aspirations.

Let us examine some of the challenges women scientists face.

Formative Years: Science in Schools and Colleges

Traditionally, science was a male-dominated field to which only a few women contributed. However, with improved education and equity at the workplace, such notions are changing. However, much remains to be done since women are still hindered by socio-cultural factors and inaccessibility to proper education. Women are expected by society to take care of the home and family instead of pursuing a career.

Perception is the biggest hurdle for women. A significant part of society still engages in retrograde thinking, believing that girls need not be educated beyond secondary school and that women are capable of performing only certain type of jobs. Many times, women find it difficult to find jobs because of gender discrimination even when they are well qualified. This mindset, of both men and women, needs to change if any progress is to be made.

Women are grossly under-represented in scientific education, research and development (R&D), and employment. In India, there is a significant dearth of women who are enrolled in universities; almost 20 per cent less than that of men. More women occupy professions in humanities and the social sciences while being under-represented in science, technology and, in particular, engineering. India is home to over 15 per cent of the world's population and women make up almost half of that number. The low literacy rate among women is of special

concern. In 2009–10, almost 41.40 per cent of the total enrolment in academics was by women students. The situation is still dire in professional courses with approximately 15 per cent being women.

In India, where approximately 70 per cent of the population lives in rural areas, educational opportunities are limited. Further, poverty puts girls at a distinct disadvantage in terms of education. Girls of primary school age from the poorest households are three times more likely not to be in school. Their chances of attending secondary school are even slimmer. In India, the focus on science education, especially for women, is very limited. Family is the first place where a child learns. It provides an initial environment for a child to develop understanding of very basic yet important elements of life. Particularly in rural India, the community has much social influence. As a result, girls are sent to school only for basic learning; many drop out at an early age.

Additionally, schools in rural areas, given the inadequate resources at their disposal, are more focused on the fundamental challenge of imparting literacy and numeracy skills. There is scant regard paid to a girl child's education and to fuelling a spirit of scientific inquiry. Reservation of seats or scholarships alone will not help unless the attitude towards the education of the girl child and her education and career changes. We need to foster a culture that encourages women to pursue careers. Educational barriers include the preferential treatment of boys in science classrooms, gender-biased perceptions of girls' scientific ability, lack of female role models in the science classroom, under-representation of women in science textbooks, and unequal training of girls as a result of fewer experiences with science activities in the classroom. It is no wonder then that many girls start to lose interest in science between ages nine and fourteen, and consequently, do not pursue advanced degrees and careers in science.

The girl student is often subject to a different set of expectations by her teachers, which shows a fundamental flaw in the way we teach them. Young girls and women are socialized to seek help and be help-givers rather than to be self-reliant or to function autonomously or competitively. Girls are encouraged to be good students insofar as they expect to be given a task, complete it well, and then receive a reward from an authoritative figure. However, in a graduate school, a student is required to be independent. Further, women require supportive interaction with teachers, which is often lacking in several academic

departments. Lack of a supportive environment exacerbates the problems of an often already low level of self-confidence instilled in girl students.

Women Scientists at the Workplace

On gaining employment, women must deal with the pressure of balancing career and family, and tackling biases related to their gender and salary. Since women are good at multitasking, they can manage with panache the many roles they are expected to take on. However, they need support from their families and their employer. The limited support provided and the prejudiced attitudes women face is evident in the numbers—despite advances in the past ten years, women occupy only 30–35 per cent of all science positions.

First and foremost, women scientists need to battle a range of societal perceptions. These include beliefs that marriage/children and career do not mix; women considering marriage or women with children have lower productivity; women who get married during their graduation are not serious about their career. Balancing home and work responsibilities places a large strain on women, who then resign themselves to jobs that require minimum time commitment.

These problems and negative attitudes persist at the highest levels of achievement and education. The fields of science and technology require almost exclusive attention to research, for years on end. Realization of what lies ahead sometimes deflects women from pursuing research. Women enrolling in PhD and post-doctoral programmes are at a further disadvantage since these programmes often mandate a shift in geographical location. Those unwilling or unable to travel miss these opportunities and therein we notice the dominance of men with PhDs and post-doctoral fellowships.

Many times, the workplace is not woman-friendly, especially when women want to resume their careers after a break. They require mentors who will train them to brush up their knowledge and skills in a supportive environment. However, there are few institutions that create such facilities for women employees.

A recent study by the IISc, Bangalore, tried to uncover trends among women scientists. Almost 46 per cent women who were not working were married to doctorates working in science research, teaching, and/or doing consultancy. The root of this lies in informal policies that prevent

the employment of spouses in the same organization. Around 68 per cent of these women do not get the jobs they apply for. This shows that besides familial responsibilities, organizational biases and discriminatory policies are constraining factors, leading women to drop out of science. We require facilitative mechanisms at the workplace to encourage women to return to their prior roles or engage in new ones.

The kind of recognition we provide for women can be a motivating factor. Sadly, national awards for science are dominated by men. Out of 133 people who won the Young Scientist award over the past twenty-two years, only seventeen were women. Awards such as the National Bio Science awards and Shanti Swarup Bhatnagar award for science and technology can be leveraged as tools to encourage the contribution of women in science and technology.

Addressing the Challenges of Women in Science

Combating such wide and deep challenges requires a multi-pronged approach that works across all levels of scientific engagement—from the grass roots in rural areas to improving women participation in doctoral programmes and research, and extending to enabling women leaders to occupy senior positions in institutions.

It is vital that companies adopt standards that enhance opportunities for women with the highest qualifications in science to apply for research. Refresher training and mentorship programmes can be provided to women scientists who would like to re-enter R&D after a career break. There should also be a relaxation in eligibility criteria regarding age of recruitment for highly qualified women.

Facilitative environments at the workplace can ensure retention of women scientists. Facilities such as accommodation, transportation, onsite childcare, and so on, can help women juggle multiple responsibilities. Adequate and skill-based remuneration, zero tolerance towards sexual harassment, and proper methods to handle complaints of harassment by seniors should be made mandatory. When companies institute such measures for their women employees, they will set an example to break negative discriminatory attitudes of male employees.

The importance of educating the girl child cannot be underplayed. Girls must be encouraged at the primary, secondary, and graduate levels to take up further studies in science. Developing the language

of positivity in the way women are represented in science textbooks can go a long way towards motivating girls towards ambitious careers in science. Outreach programmes, such as science camps can be an excellent learning platform for young children to learn about future education opportunities, scholarship, and funding options, as well as enabling interactions with women scientists to offer young women with role models.

National and state governments can play a significant role by establishing policies that promote an enabling environment in research institutions. Several measures can be adopted, such as child-care allowance in the absence of day-care centres at the workplace. They can also create and develop new avenues to promote entrepreneurship and self-employment for women scientists.

Gender Equality in Biotechnology—A Key Entrepreneurial Raison D’etre

As an entrepreneur, I have always been driven with a sense of purpose that was about challenging clichés and stigmas that plague women in business, women in the workplace, and women in research. I was determined to create a biotechnology enterprise that fostered gender equality and an innovative research culture. Today, we are the most preferred employer when it comes to women pursuing careers in science and technology where women account for 35 per cent of our scientific human resource. As a woman business leader, I am proud that we are today Asia’s largest biotechnology enterprise and among the world’s top ten biotechnology employers with perhaps the largest scientific female work force!

Science, societal progress, and the role of women scientists are intertwined—each complements the other as we strive to develop as a nation. Women are expanding their horizons and working to fulfil their potentials and add value to themselves and the society they live in. With a country’s progress dependent on the robustness of its scientific advances, women scientists are invaluable resources in furthering national development.

However, there are several barriers that impede such progress. Fundamental to these is the perception of woman’s role in society. They are expected to be care-givers rather than autonomous and self-reliant

individuals. Girls who aspire to build a future in science are discouraged since it is a 'male' field. Women who juggle career and family struggle to cope up with negative attitudes, poor salaries, and unsupportive family and work environments. Further, they face discrimination, which may range from unfairness at the point of hiring to salary gaps and biases in promotion opportunities.

Removing such barriers requires effective measures and policies and a fundamental change in mindset to encourage women to pursue science and technology as feasible and remunerative careers. Women scientists can make an even greater impact on society if we learn to appreciate them and help them attain their potential.

Tulasi Munda

FROM OBSCURITY TO LIGHT

women in Odisha

When India got Independence in 1947, the sociopolitical atmosphere was still vibrating under the influence of an alien understanding towards a democratic and dignified society. Girls were treated as domestic beings. Education and attaining a sense of individuality was wonderful to a girl like me belonging to a tribal community in Keonjhar district of Odisha. The age-old practice of girls being dragged into the customary cage of marriage had always provoked me to question 'Why should girls be treated like this?' I could not make up my mind for marriage like the other girls in my village. While other children played, tended goats in the fields, or worked in iron-ore mines, I wanted to study. I cannot say why I thought differently from others. Perhaps I was determined to get educated as I considered it the only and ultimate way to make me capable to stand up against the evils of social customs.

My Early Resolution

My father used to work in the royal estates, so our living conditions and social status was quite better than others in my village. Though I was the youngest daughter of my family, I had spent my early life

in child labour. At the age of thirteen, determined to break free from marriage customs and social prejudices, I decided to leave home to fulfil my goals and live a life on my own. Perhaps the cultural heritage of our tribal community, which emphasized on the art of 'living by doing', helped me a lot to face the numerous challenges in life. Free from social traditions and family customs, I prepared myself to earn my living by working as a labourer in the mines. I wanted to educate myself, learn new things, and speak exciting languages like Hindi and English. At that time, there was no school in my village Kainsi or even in the areas around my tribal society as none was much interested in educating their children.

Striving for Light

Hence, thinking about education was like a dream for girls like me. I started my education without any formal structure, syllabus, and subject. I learnt everything in a most scientific and experimental manner. I learnt from the conversations, dialogues, interactions of the people in the mines around me. I also imitated the spoken language from the instructions and orders that the managerial group gave to the labourers. I learnt to write on soil with the help of my fingers. I learnt and practised reading from the posters on the walls, the headings on the road side, and the information written on notices. I belonged to the Munda community, tribe Ho, and Kui was my mother tongue. However, I was deeply convinced with the objectives behind learning other languages like Hindi, Odia, and English. I found Odia was spoken mostly by the locals, often at marketplaces; English was the modern social language, and Hindi was mostly spoken in the mines to communicate with people belonging outside Odisha. I found one could learn everything only if one knew English.

In this way, I acquired the basic capabilities of 3Rs and learnt three languages very well. However, the real motivation behind my education was my determination to minimize the plight of the innocent, illiterate people working in the mines. The labourers in the mines toiled intensively only to survive, they strived for neither any improvement of their condition nor for prosperity. The workers were completely ignorant about the means to express their demands, needs, and necessities, and the mine owners were only concerned about the prospects of the

business, showing complete indifference to environmental issues. This critical area bothered me a lot and provoked me to visualize my goal—to do something for the betterment of society—with much clarity and consciousness. After completing my basic education, I began to enhance my depth of knowledge by broadening my experiences. I developed my skills of communicating, understanding, and upholding others' views only through extending my interactions with more and more people.

Showing the Path of Light

Whenever I faced any doubts and dilemmas or faced any problem, I always asked my inner self. As the workers only believed in toiling hard and earning money for survival, it was a great hurdle to convince them about the necessity of education. I decided to motivate them by explaining how education could enable them to lead their life in a more beautiful way. First, I decided to win their faith and convince them to hear me and understand my point of view.

Women, who worked at the mines, often brought their babies at the site and kept them under the shade of a tree or beside a wall or on a swing tied to the branches of a tree, to keep an eye on their child while at work. Though I was against the custom of marriage, I could not stop myself from worrying about these babies, who constituted the future of our society. I started to take up these babies to a nearby place and take care of them. Gradually, my dream of making others educated started to take shape in a very informal set-up. Soon the workers, grateful to me for having taken care of their babies, cooperated with me. Others also showed compassion towards my mission. I started the evening school. People, who worked in the mines during the day, came to learn at my school in the evenings.

Since those days, I have been suggesting to the government of Odisha about the necessity of establishing evening schools. In my opinion, evening schools provide the appropriate answer to attain mass and universal education. As in most families children are forced to work as labourers to increase the earning power of the family, they get no time to go to school for education. For such children, evening schools can prove to be extremely beneficial. However, the government has not shown much keenness on setting up evening schools, though there are several evening colleges in the state.

During the day, I took care of the babies of the working parents. In the evenings, I taught the parents of these babies. In this way, I began to set the stage for social transformations to occur. My next obstacle was to appoint a good teacher for the evening school. It was a difficult task. I began to feel helpless but as I am essentially an optimist, I asked myself for a solution. My inner voice imbued within me a spiritual strength and I decided to teach. I remembered that I was able to read and write. I had my basic knowledge on counting the numbers and a bit of arithmetic as well. Teaching became my first contribution towards my society.

I took upon the task of bringing the light of education to my village. I set out on my mission by forming my first social organization called Adivasi Vikas Samiti. Through this samiti, I tried to convey the importance of education to the villagers. I needed to convince them so that they agree to forego the wages that their children could have earned for them by working instead of studying in a school for the entire day.

The next problem lay in the mobilization of funds to start the school. I took my undaunted step to start the school in the open under a mahua tree. I decided to take the occupation of selling vegetables in the market. In the course of time, my commitment for the cause impressed the villagers a lot. Even they began to contribute in whatever way they could. The villagers also even helped in cutting blocks of stones from the nearby mountain for the construction of the school building.

Life for Service

My conscience motivated me to serve and sterilize the society from all vices. I decided to dedicate my life for the downtrodden and work for the consolidation of tribal culture and heritage. I was overwhelmed by Gandhian philosophy and the ideals of Vinobaji. I believed in the saying: 'Sir se sarira ko jodo'. It means my head and hand must work together. I decided to think good and do good for others. Though I was unable to define the 'goodness', I was concerned with only my satisfaction and other's happiness.

In 1964, I got the opportunity to participate in a meeting addressed by eminent social worker Malati Chaudhury in Keonjhar district. I listened to her complete speech with much attention and sincerity, and thereafter, my misapprehensions and biases about gender feelings and discriminations (that I am a mere tribal girl) completely disappeared

from my mind. I could see my destination in coming future. In that meeting, I was the first person to rise to give my willingness to join in the social mission. From that moment, I have never looked back. My passion for doing and learning catapulted me into the orbit of women like Malati Chaudhury, Rama Devi, and Nirmala Des Pande. I learnt the art of commitment, arousing one's inner confidence, and looking towards the vast vision of victory of the humans.

As I had already realized, early in my life, illiteracy is the root cause of all evils—poverty, unemployment, drunkenness, superstition, fear—in my tribal society. Education is the tool to free the minds of people from all kinds of idleness. I was determined to fight against illiteracy to the last spirit of my soul. I have faced many disappointments and distractions in my struggle. But I have always remembered that I am doing good for others so why should I worry? I have realized that God is omnipotent and that he resides where there is goodness.

Science and spiritualism are the two fundamental concepts of human civilization that have been interpreted wrongly. This misinterpretation has triggered several global concerns. Spiritualism denotes 'Sanātan Dharma' and comprises the gist of all religions. I feel spirituality means to do good, think good, feel good, see good, and to live in goodness all around. Whatever religions one might follow but he/she should never forget these goodnesses as all religions speak about loving each other and living together. No religion endorses violence, hatred, and discrimination.

Science should bring about harmony in the world. Science has evolved as the solution to the difficulties and different desires of human beings. I believe that education is the ultimate tool to serve society scientifically, that is, to serve in an authentic and realistic way. In present times, the educational system acts with two purposes. One is to get a degree attesting one's credentials and to earn money thereafter by getting a job. However, jobs enslave humans too. People are beholden to their boss and to the tyranny of a routine. People have jobs but their minds are still oppressed by the fear of loss. Hence, I think that education should instill in man the empathetic value of human culture. Education makes man think better, work better, and make others feel better. However, educated young men confine their future in some limited field. Unemployment persists and superstitious beliefs gains ground to counteract such situations. Lack of hygiene, drunkenness, wife-beating, and all sorts of backward thinking remain. The important

issue in life is whether the rights of women, children, or Adivasis can be tackled better if people have a higher level of education.

Some people feel that modern education and mainstreaming of the tribal society may harm tribal culture. But in my opinion, culture is not a static concept; rather it can be arranged beautifully in a benevolent and beneficial way to cater to social necessities. I think culture maintains a healthy human society. Education must help to create tribal cultures and customs in a creative, caring, and collaborating manner towards the healthiness of the tribal society.

In this backdrop, I consider marriage as a social organization. So it should not be confined within the limitation of caste, creed, and religion. Rather it should be founded on the ideals of caring, cooperation, and collaboration of two minds, and the creation of a better society. With the educational objectives fulfilled, in recent times, I have shifted my focus on other developmental needs of the tribal people.

Now I have turned sixty. However, I have miles and miles to go before I sleep. I still have many unfulfilled dreams. I would like to eradicate alcoholism. I feel extremely hurt to find the tribal people suffering from financial constraints due to their traditional practices of addiction to liquor.

I wish to uplift the economic condition of the tribal people by bringing to them the benefits of the various development schemes that the government has only formulated on paper but have not put into practice. I would also like to save our environment. The jungles need to be protected. The Adivasis are discontented as they are suffering from injustices and inequalities. They are being displaced by big companies, contractors, and mafias who are working only for their own profits. They are neither concerned for the environment nor taking care of the inhabitants. The government has only voiced its support for the protection of the rights, but effectively it is working on the wills and whims of the companies. Many open-cast mines have become festering sources that have weathered the coffers of the rich but ruined the fertile land of the Adivasis. In summer, the iron ore dust hangs heavy in the air, which is harmful to humans as well animals and plants. During monsoons, rain sweeps the iron ore into the surrounding lands, and in the process, contaminate them. The jungles are fast receding; the farmlands are becoming increasingly barren, the tribal people are becoming jobless; and our environment is losing its purity and

simplicity. The Adivasis are crying for help but they are unable to voice their demands, present their case, and explain their rights. That is why they are trapped by many, and as a result of that Maoist extremism is consolidating its foothold.

I wish to continue with my endeavours till the day my people are with me. My mission is to be of service to the people. I would not like to emulate the women of my ideals—Vinoba ji and Malati ji, but I would like to walk on their path with my feelings and realizations that I have attained from them and being with them. Truly, I think I have not done anything magical. I do not want to be judged on the basis of my success and failure. I believe in that which needs to be done and I work for that which has remained undone. I want nothing for myself. The honour and rewards I have received reveals the love, affection, and cooperation that my people have shown towards my work. By referring to ‘my people’ I do not mean only the tribal people but all those who need my service. I know that I have come to this world with no baggages and will leave with nothing. In this brief spell, I can only make our lives happy by bringing happiness to others. My life is completely dedicated to what I believe in that is to love people and to work for them. I want to be free, to think freely, to work freely, to travel freely, and to bring a reformation through education. I feel that my life is a commitment to society. I believe that if one really wants to make a difference in society, one needs to be selfless.

Sobha Naidu

QUALITIES THAT MAKE WOMEN DISTINCT

In the past, while women were mainly responsible for taking care of children and other household matters, men used to provide physical security and financial stability to the family. On a positive note, there was a clear demarcation of their roles. Women were given utmost respect as caretakers of the family and as upholders of family values and traditions. In a way, there was less pressure on them as the responsibilities were shared.

However, they were not much encouraged to participate in social life actively. Being under man's protective shade, women, mostly, led restricted lives. There was no economic independence, and hence, they could play no role in decision-making and received no exposure to the world outside. In spite of leading restricted lives, women, however, have played a major role, effecting key changes in the society, since ages. Women possessed and still have the capability to influence the family as well as society.

Changing Roles of Women

Various episodes from the past—mythological anecdotes, fairy tales, historical accounts, or day-to-day affairs depict that women have the ability to influence both in a positive, as well as in a negative way. Most

Indian epics, for instance, strongly validate the point of discussion. Sita, the protagonist of Ramayana and wife of Lord Rama, was an epitome of serenity and endurance. Her deeds and instincts were believed to be exemplary. Even today, the values of feminine virtue that she preserved are considered sacred by most Indian men and women. Satyabhama, a central character in Bhagavatham and wife of Lord Krishna, was known for her pride and determination. Parvati, Kaikeyi, Draupadi add to the list of such virtuous women.

From the historical perspective, there were examples of women who exercised control that resulted in historic changes. For instance, Rani Rudrama Devi was the most prominent ruler of the Kakatiya Dynasty on the Deccan Plateau. She was a competent fighter, a dynamic ruler, and the greatest queen of India. Also, Lakshmi Bai, the Rani of Jhansi, was praised by the British army as the most dangerous of all rebel leaders. She was a symbol of intelligence and perseverance. Jijabai was the mother of Shivaji, the legendary ruler of Maratha kingdom in India. With her great vision, piety, and intelligence, she profoundly inspired her son and her contribution in developing her son's impeccable personality was remarkable.

Times have changed and so has the role of women in society, more significantly in the past few decades. The woman of present times is aware of the change education can bring about and so is better equipped in terms of qualifications. Her scope and exposure to the world has broadened, which in turn has opened a vista of opportunities. Women have thus achieved great heights in different fields, such as politics, industry, education and technology, arts, sports, and media and communication, to name a few.

In the context of India's political scenario, Indira Gandhi was the first female Prime Minister and the longest serving female Prime Minister in the world till date. She was known for her captivating influence and political acumen. These are only a few distinct cases and there is not a single field where women have not treaded. Time and again, women have proved themselves in many professions. There are epic writers, freedom fighters, teachers, officers, industrialists, scientists, music and dance exponents, sports stars, trendsetters, and so on.

Many women are striving hard to create an identity of their own, in their own simple way. Today, a woman understands the significance of social, economic, and political freedom, and hence, is determined to

achieve them. She also understands that to make a name for herself she requires working harder than men. And, the constant changes in the social, economic, political, and industrial fields of a country demand active participation of women in society, which in turn, places a greater burden on them in terms of additional responsibilities, which were definitely not their share of work in the past.

It is generally said that household chores and bringing up children were central to a woman's domain. Strange as it may seem, this notion has not changed much in today's society. The feminine presence in the home is often regarded as the ultimate basis of blissful state. In the present era, in many families, women's income contributes significantly to family interests and domestic standards. Still women are not expected to ignore their traditional roles. It is amazing to see how the Indian woman has risen to meet these demands and moulded herself to suit the requirements of a changing society. The timid dormouse has transformed itself into an assertive tiger to reckon with. A woman now earns, spends, analyses, and she independently handles children, household work, and her own survival. However, this transformation was not an easy one, was riddled with struggle every step of the way.

Though things have changed in present times and women have greater opportunities to prove themselves, yet there are still several suppressed women, fearing to peep from behind their veil, scared of voicing their opinions for fear of losing their lives or their honour. Right from the day a girl child is born, she is forced to walk on a carpet of thorns, be it female infanticide, discrimination, domestic abuse and violence, dowry deaths, human trafficking, and so on, to name a few. The hope that education would improve their situation has only been fulfilled partially. Most educated women face another kind of non-cooperation, be it at home, school or college, in the workplace or social sphere, in the form of the dominating attitude of men.

In the absence of trust, concern, and respect for their basic rights, a considerable number of women are fighting a battle on two fronts. One, a battle with the outside hostile world consisting of men and women oblivious to the needs of women to be heard, and another, more crippling mental battle within themselves, unable to decide whether to be submissive or independent.

Women now seemed to have, in addition to the previous roles of housewife and caretaker, the added burden of protecting their identity

and self-imposed multitasking on a regular basis. This, in turn, has been proved to leading to the building up of psychological pressure resulting in physical instability, mental trauma, and ultimately, emotional imbalance. Thus, the present day woman is required to fight at every step of her life to preserve her self-respect. Hence, what is generally termed as the so-called 'aggressive spirit' of women is actually the essential prerequisite to establish their identity.

In spite of such struggles, women have repeatedly proved that they are capable of positively influencing not just themselves but the entire community around them. With all due credit to the opposite sex, there have been strong voices and hands of support to the women fraternity. Hence, the society too is changing and accepting the various roles of women as independent individuals. However, there is a long way to go. Society should provide women a dignified existence by sharing women's responsibilities at home, as well as in the outer world. In order to widen women's participation in the national and international arenas, protection of their rights and abolition of discrimination must be ensured.

The implications for the new generation of the struggle of present-day woman are quite varied. Girls and young women are determined to upgrade, to ascertain their role, to carve a niche for themselves, and to leave an indelible mark in the society they live in. The dynamic side of the women of the new era has resulted in elevated confidence levels in most educated women, allowing them to dream of greater heights and forcing the society to accept their capabilities. However, a negative implication of such dreaming is that marriage and childbearing are considered by a set of women a hurdle in their career plans. This attitude has dealt a severe blow to the essential concept of motherhood and feminine sensitivity and sensuousness, which is a severe loss to the whole humanity.

Instead, each woman should weigh her abilities, talents, and her chances of creating a personality of her own. Every woman should be able to judge her innate abilities and attributes and should act rationally in a given situation. Logically, this helps in accomplishing her goals as well as sensibly convincing the society to accept her role. On analysing a range of characters portrayed in most of my ballets, trying to deeply appreciate the nature of womanhood, and most importantly being a woman, I have understood that women have certain inborn qualities with which they influence others and society on the whole. Beauty, intelligence, patience, compassion, courage, aesthetic sense, and so on

makes women stand apart in the society. Traits like excelling in a field of their choice, fighting against odds, resisting when suppressed, showing restraint in testing times, expressing love and affection to her dear ones are very basic to every woman.

Shaping a Life of My Own

Being a Kuchipudi dancer for the past few decades, I wish to relate my experiences as a devoted artist and the efforts I had taken to build my own identity, more so in the context of being a woman. Kuchipudi is the classical dance form that originated in Kuchipudi village of Andhra Pradesh, India. The dance form has a unique technique of combining the varied styles of makeup, fabulous costumes, and remarkable settings, apart from incorporating imaginative innovations in portraying expressions, and developing such innovations to suit the purpose is a skill in itself. Designing a dance ballet is a complex task involving a lot of groundwork to be done with extreme care and attention. A lot of time is spent to capture the delicate nuances of feelings through the dance form to create an enriching experience.

One of my ballets, 'Navarasa Natabhamini' depicts a woman in her many facets and highlights the potential of women in the past, at present, and in the future. Though the storyline is mythological in nature, it is relevant to the present times, emphasizing aspects innate to each and every woman. The nine basic emotions portrayed in the ballet explain the features fundamental to the nature of women in general. But there is a definite sequencing which starts with the portrayal of the emotion of disgust first, then compassion, followed by joy, love, beauty, fear, wonder, heroism, rage, and ultimately, an awesome display of peace and serenity, composure in the face of trials and tribulations. The ultimate emotion of peace and composure captures the realization of all nine distinctive moods. While trying to capture the fine distinctions intrinsic in the dance form to create an enhanced presentation, the women, performing in the ballet, exhibit such traits that are unique to their style and those that make them distinct. Each one of them seems to be a personification of the mood itself.

One can be a doctor, a scientist, a political leader, or an engineer to render services to society and can attain utmost satisfaction, accruing many benefits at the same time. However, performing arts is such a

profession where a dancer draws the viewer into her own world and the viewer experiences ecstasy. This can be achieved only through fine arts. Thus, it has been proved that classical art too, at par with education, business, and politics, can be used as a tool to promote social awareness among the people. And, women are now emerging to be a better choice to make use of these tools to bring in a change in the social order.

Women, being good at multitasking, don many a hat to prove themselves. They have the potential of dealing with more than one issue at a time unlike men. They can transform into any role with ease—be it a mother, wife, daughter, lover, artist, or worker and try sincerely to excel in each role. A woman is regarded as the first ‘guru’ (teacher). She is the epitome of perfection and an uncompromising purist. A real teacher is capable of moulding a lump of mud into an impressive sculpture. She transforms her disciples—be it her children or students—into lively sculptures, which bring in a change in the entire society. She is capable of identifying the shortcomings of her disciples, rectifies their flaws to enable their inner talent to shine forth, and helps them in exploring the depth of their own approach. She is the only teacher, who fine-tunes her student until she is satisfied with the result.

On a final note, women have always emerged victorious because of their courage, determination, perseverance, and unyielding faith. It is now evident that establishing powerful women with an aura of influence will transform societies all around. We are poised at a time in life when the role of every single individual is considered essential to create a harmonious whole. The role of women in society today assumes greater significance in the context of them holding responsibility in nurturing well-rounded citizens, capable of appreciating the worth of every individual, understanding the importance of every piece of work to create a composite and harmonious society.

As our scriptures rightly say, ‘Yatra naryastu poojyanthe ramanthe tatra devataa’, meaning gods reside where women are respected. It is our duty as man or woman to lend every kind of support to women to realize their potentials, and to enable them to lead a life of dignity, to work towards a goal of their choice, and to feel that it is indeed a blessing to be born as a woman. The viewpoints expressed here are purely a result of my personal experiences and the era that contextualizes these perceptions must be cautiously examined. I salute every woman, who is braving a variety of odds to live a dignified life.

Indira Parikh

TRANSFORMATION OF SOCIETY

role of Indian women

It is commonly believed that the universe consists of five elements—the earth, sun, air, water, and ether (sky). Each of these elements has its unique characteristics reflected in its manifestation of specific qualities and behaviour. The dynamic interplay of all these five elements and its unique configurations created an environment over millennia for the evolution of human existence on this earth. As human existence unfolded, each geographical location acquired its unique configuration of human existence creating diversity of civilizations with their unique socio-cultural patterns. In the crystallization of culture, society, and families, roles of men and women got defined and over time got highly differentiated. The biological differentiation created distinctive patterns of social roles and relationships in the context of social and familial institutions. Over time, these were codified through social institutions, social structures, and expected social role behaviour from men and women. These codifications then became absolute and began to be perceived as the only way of role behaviour for both men and women.

Across centuries and across time, the role of Indian women has remained rooted into eternity. At one level, the role of Indian women remains frozen in time and at other times crosses many a thresholds of

transformations. It has taken centuries for women's role to transform to different forms, hues, colours, shapes, and sizes, and to arrive at the relevant and meaningful roles of present-day women. Even today, there are many women, who continue to live in times of yore, chained and shackled to roles anchored in socio-cultural codings of yesterday. These roles are experienced as carved in stone beyond which some women do not move. Moreover, there are some women in present times who struggle to break the chains and shackles to find freedom, create new spaces, and define a new role for themselves.

India is an ancient civilization and Indian women have a rich heritage of role models consisting of goddesses and deities, saints and devdasis, heroes and villains, creators and destroyers, creators and wreckers, and ideals and duty-bound women and wasters. As society unfolded and new contexts of life were created, the definition, meaning and expectations of roles and the accompanying behaviour of women started to undergo a dramatic change: first, in a slow timeless unfolding of the agrarian and rural society of India, and then a fast-paced rapid transformation of the industrial society. Let us look at such memories of civilization of culture and societal transformation and the transforming role of women in the socio-cultural history of India.

This article explores the role and identity of Indian women in the context of transformations occurring in the Indian society. Any understanding of Indian women and their role and identity requires a walk backward into time, looking back into the pages of Indian history where once upon a time women were goddesses; pure energy and power consorts to gods; and played key roles in mythology, epics, and folklore. They represented their uniqueness through their devotion to their gods and their men. Subsequently, history has provided evidence that there have been women who made departures into the world of men, fought battles, and waged wars against oppression and gave up their lives. And, there are women of today who in the twenty-first century have created new paths, blazed new trails, and have emerged as role models for the next generation. This has all been in the context of a changing society from agrarian rural to industrial urban.

Indian society has experienced continuities with the rural agrarian Bharat and dramatic discontinuities of the industrial urban India. Each discontinuity after some turbulence and upheaval contributed to a

model of society, relationships, and roles of individuals, collectively and more specifically, the roles and identities of Indian women.

This article traces millenniums of continuities of the unfolding of the Indian civilization with its processes of acculturation, codings from the socio-cultural context, and socialization of women into roles from the divine to the present-day discontinuities of women emerging in their roles of corporate women. Some of the landmarks of discontinuity that forged the female identity were ideological historical, social and can be broadly classified into the following:

1. The concept of Purusha and Prakriti
2. Women Goddesses: Divinity in the role of women
3. Myths and mysticism of women
4. Epics, folklore, and historical tales on the role of women
5. Shift from an agrarian to an industrialized society
6. Industrialization in India and new roles of women
7. Women's role from the 1950s to the next millennium: five phases
8. A new landscape and road map for women in India

The Concept of Purusha and Prakriti

The macro concept of unity and then differentiating male-female forms has been depicted by Vedas, shastras and Upanishads. According to Sankhya philosophy, the universe has evolved from gunas. The gunas have many elements. However, the gunas in their equilibrium is described as Prakriti. It is the energy. Pure energy is feminine. The duality of human existence created the concept of Purusha. It has many meanings and descriptions of its reality. One of the multiple meanings is that Purusha was attributed the male form. Similarly, the Prakriti, the other aspect of the duality, was attributed the female form. Over time, Purusha represented the male and Prakriti the female forms. Purusha was described as the consciousness—the one who utilizes the object of the world and Prakriti was described as the unconscious. A further postulation was made that Prakriti needs to be controlled and guided and that is by the conscious self, which is the Purusha. Prakriti is unintelligent and has to be experienced by some intelligent force, which is postulated in Purusha. Thus, it becomes clear that there are two realities: Prakriti, the one all-pervading (unconscious) material cause of

the universe, and Purusha, the many pure conscious intelligent entities who are not subject to change. It is from the interaction of these two principles that evolution of human existence occurs.

One of the basic ideals is that of Prakriti, which has been contrasted with Purusha, not in sexual terms but rather as material to the efficient cause of the universe. Though Purusha was regarded as masculine principle, being masculine in gender and literally ('man'), Prakriti was not thought of as specifically feminine in essence, despite its feminine gender. The term Prakriti, in fact was often used interchangeably with the word pradhana, neuter in gender, which signifies the first principle (of material existence). Gradually, however, Prakriti became 'feminized' as it was increasingly identified as jagad yoni, the 'womb of the world', and thus material matter was reinterpreted as maternal nature or Mother Nature. Finally, Prakriti came to be associated with various goddesses, such as Devi or Durga. Prakriti is no longer considered the insentient material principle, but a conscious, animating force within all matter. Furthermore, Prakriti is now related to Purusha not so much as material to efficient cause, but as woman to man and as creator to procreator.

As one can see from the logic and description, the first and very basic coding of the differentiation between the male and the female universe of characteristics reflects a structure where meanings are given which then gradually anchor themselves in a hierarchy of roles, relationships, and expectations of behaviour.

Women Goddesses : Divinity in the Role of Women

The five cosmic elements of Purusha and Prakriti and the emergence of human existence as well as the Vedas and shastras crystallized a concept called Ardhnareeshwara. Here the concept reflects the inseparableness of the Purusha and Prakriti—the male and the female forms. There is a union and a communion between the two and one is incomplete without the other. Then as time unfolded, newer meanings began to be crystallized and the separation between the two emerged. God Shiva, the male half of Ardhnareeshwara was separated from the other female half. The female was crystallized in a concept of a divine female consort. A male god and a mortal female woman translated into Shiva and Parvati—the male and the female, the Purusha and Prakriti. However, in the initial phases of this evolution, society could not do away with

the concept of energy or Shakti and these were postulated in goddesses like Durga, Kali, and various other forms. Each goddess had a unique quality, a unique transport in the form of an animal or a bud. Her unique nature was crystallized and then she was set to do what she was supposed to do.

Goddess Kali

She is dark as soot and always living in the cremation ground. Her eyes are pink; her hair dishevelled her body gaunt and fearful. In her left hand, she holds a cup filled with wine and meat, and in her right hand, she holds a fleshy cut human head. Although Kali sometimes is said to be beautiful, however, in mythology she is associated primarily with three other Hindu deities: Durga, Parvati, and Siva. Siva is said to have tamed Kali, but myths suggest that she was never finally subdued by him and is uncontrollable. In general, then, we can say that Kali is a goddess who threatens stability and order. Kali is that tendency which depicts power out of control or power in imbalance with stasis. She dominates the primordial tension between detached calm and frantic display in such a way that creative action becomes threatening and dangerous. In essence, Kali represents Prakriti into unbound fury and form.

Shakti

The term Shakti, feminine in gender, has long been associated with various male deities as their power of energy. Gradually, the energy of each god become personified as his consort, and thus if a god was separated from his consort, he was powerless and inert. These notions were most fully developed in the Sakta school, in which the goddess Shakti, the active feminine element identified with Siva and wife Devi (known also as Kali or Durga), was raised to pre-eminence over the masculine. Hence, it may be inferred that there is but one ultimate reality, and that is the feminine. This reality takes on different forms, to which the ignorant impute independent and permanent existence. The wise recognize this existence as grounded in Devi and that this reality is related to male deities, as to all that exists, not externally but internally, not as consort, but as Shakti.

The goddesses reflected the identity of a female who had immense power, generosity, energy, and acts as the catalyst to transformation of one form of society to another. Then came a time when these deities were relegated to the space of gods and goddesses with immense superior powers. In order to avail of these superior powers, men and women had to worship them to be similar or like them on earth.

Having postulated the power to goddesses, these were then carried to the social structures of mortal human beings. The connecting link between the goddesses to human beings is conceptualized in Goddess Ganga.

Myths and Mysticism of Women

From the world of gods and goddesses emerged myths and epics. The goddess connecting the realms of heaven and earth is Goddess Ganga,

O Mother Ganga, may your water,
Abundant blessing of the world,
Treasure of Lord Siva, playful Lord of all the earth,
Essence of the scriptures and
Embodied goodness of the gods,
May your water, sublime wine of immortality,
Sooth our troubled souls!

The name Ganga refers to both the goddess and the river. She is claimed as the consort of both Siva and Visnu. Her waters is said to be the liquid embodiment of Shakti, 'as well as the fluid for immortality, amrita. Her avatarna or descent to earth, brings both her power and her nurturance; Ganga thus brings fertility to the plains of India. It is significant that Ganga is the embodied 'goddess' of the gods, for hers is an energy perpetually praised as good. Her destructive force is utterly purified and calmed in the hair of Siva. As she flows down upon the plains, she becomes the Mother: embracing, nourishing, and forgiving

Epics, Folklore, and Historical Tales on the Role of Women

The two epics—Ramayana and Mahabharata narrate the stories of land and kingdoms, kings and queens, princes and princesses. Moreover, the two women protagonists in the epics—Sita and Draupadi—reflect

the two polarities of a women's role and identity. Both have many similarities as well as differences. Similarities are that they are not born of mortal conjugal union. Sita is born from the earth and Draupadi from fire, creating their unique identities and roles, and making them different temperamentally. From these two identity patterns, Indian society chose to emulate Sita as the ideal for women in the agrarian society. Draupadi could not become the role model whereas Sita was made the idol for women to aspire and follow.

Folklore glorified the role of women as devotees of their gods, showing unstinting faith in his worship. Folklore glorifies tales of devotion and faith of Radha for her Lord Krishna, who is never accessible to her. Yet her trust and faith are so deeply anchored in her Lord that she devotes her entire life in his worship. However, there are instances evident in folklore, where Krishna is shown being devoted to Radha. There are two ancient paintings depicting Krishna washing Radha's feet and or taking the thorn out of Radha's feet.

The tale of Meera, a queen devoted to her deity, Lord Krishna, to the extent that she is willing to drink poison to appease the royal family and not give up her faith and devotion to Lord Krishna, is extremely popular. These two and many more women showing their devotion to their gods reveals the faith and respect that women demonstrated for men, represented by the gods.

History is replete with many role models of women who have made their mark and left their imprints on the society for their valour and courage. They have created and walked on a new path for themselves and have paid the price for those choices. The most visible among these are women like Rani Lakshmi Bai and Queen Padmini, who fought against injustice showing great courage and even sacrificed their lives to protect their honour and dignity. Cultural codings of goddesses, their roles and relationships with their gods, the socio-cultural codings of the role of women as devotees, saints or wives of saints in mythology, folklore, folktales, and history convey the continuities and discontinuities in society with regard to the position of women.

A major discontinuity occurred when society transformed from an agrarian society to an industrial society anchored in a very alien culture and society, that witnessed dramatic shifts in the assumptions of the roles of men and women. Let us look at the transition of an agrarian

society to an individualized society. The assumptions of each for the role of women and men are unique.

Shift from an Agrarian to an Industrialized Society

Across the world, human civilization went through a long period of agrarian beginning and consolidation in social structures, processes, and roles. The agrarian society in India can be traced back to about 2,500 years. Today, India is a multi-diverse and multi-cultural nation, and the society and people from rural and urban reality continue to have their individual identities. The agrarian society operated with some basic assumptions. These assumptions then defined men and women's desirable roles in societies.

The shift of Indian society from agrarian to industrial and from rural to urban is characterized by the following distinct features, which in turn shaped men and women's individual roles:

1. The agrarian society clearly defined the roles of men and women. Men interfaced with the external environment while women interfaced with the internal environment of home, family, and relationships.
2. Social living and work were quite integrated in the agricultural social design through caste and community affiliations. The integrated life of society and work revolved around the seasons. Events of social institutions like marriage, birth, death, and festivals created and brought communities together or resulted in conflict.
3. Men worked alone, women lived in groups/communities. Communities got together to give an expression to their togetherness.
4. As industrialization took place and external influences affected society, the above assumptions began to change. With the set-up of formal work organizations, women like men, got educated, interfaced with the external environment, left home, and started working. The women began equipping themselves with occupational expertise. For the first time, men and women in organizations encountered each other without their social roles/baggages, but with their competencies and capabilities. Initially most found it difficult to relate with each other. Moreover, as more women entered and

continued working, the acceptance of the fact that women can also contribute equally at work, began to emerge.

5. Society/organization and families therefore encountered many new interfaces. For example, in contrast to the agrarian society where men worked alone, men in organizations are required to work in groups and the concept of teamwork has acquired immense significance. In contrast to the earlier context where women lived in groups, she lives alone in urban centres. However, the wherewithal of managing the external interface of the environment as well as managing relationships at home, creates stress for women.

6. For women in society, meaning in life has largely come from relationships, and for men it has come from being a good son to his family.

Thus, centuries of the agrarian ethos fostered values and attitudes, patterns of interpersonal relationships and meanings of life, which became deeply embedded in the psyche of the culture and society. In fact, they became so absolute that they were assumed to be part of the basic nature of human beings. The concepts of life, predisposition to action, and curtailed aspirations to which individuals adapted themselves came to be treated either as being God-given or as being essentially inherent qualities of human beings. Thus, individuals became victims of their own natural, social, and spiritual adaptations, which societies call heritage. The major continuity-discontinuity juxtaposition from the identity and the role of Indian women is represented by the concept of Mother India. That moment and point of time in history represented the ideal woman powerful and yet helpless, ideal persona but dependent, value based but prey of men, a victim, a martyr but pure, sacred and pure Shakti. The Mother India image depiction froze in that moment in history; and then began the generation of modern young women of the twentieth and twenty-first century.

Socio-cultural Context of Women

1. Each country over centuries evolves a cultural heritage, which is carried by its institutions and people.

2. Each culture evolves a social design with social structures and its processes to maintain society.

3. The socio-cultural context has institutions, traditions, and rituals, which fosters values of living, modes of making choices, and meanings in relationships.

4. Society designs and defines roles for its men and women, both in family and home settings, as well as occupational and work settings.

5. Each country has a cultural, social, religious, and political history with its ideology and philosophy. This influences both social and occupational roles that have enduring roots.

6. Each society has economic developmental thrust through industrialization, and thereby designs new occupational roles for both its men and women.

7. Alternative models of occupational roles are logically and rationally understood but not emotionally responded to by society
What are the roles that women played and continue to play?

With the emergence of the industrial era, which coincided with the independence of the country, a whole new process of work ethics, technology and, consequently, a new lifestyle got introduced. According to some thinkers, girls in large numbers joined schools and colleges. For the first time, they glimpsed a world, which was earlier the exclusive domain of men. A whole new vista opened up before the Indian woman. She discovered she could do well in her studies; that her intelligence was hers to shape and enhance. She discovered the magic of choices, options, and alternatives. Women entered the portals of medicine, engineering, administrative services, politics, law, teaching, and mushrooming business organizations and manufacturing industries. Slowly but steadily, they moved into skilled and semi-skilled jobs and a small number even succeeded in joining what were considered 'elite' professions.

Through education, women from the better off socio-economic strata became aware of the existing social disparities and of the condition of women in general, particularly of those belonging to socially and economically deprived groups. Some of these women joined clubs like the Lions to participate in voluntary social programmes for the socially and economically deprived. It soon became a status symbol to join these organizations, to be involved in fund-raising or charitable activities, and be considered part of the emancipated or avant-garde lot. Parents of educated girls also recognized their high economic potential. To them, their daughter's economic self-reliance was an asset in marriage and perhaps could lead to a reduction in the dowry demanded. Economic

independence also served as an insurance against future uncertainties, and only education could provide opportunities for this independence. However, caught between the conflicting demands of achievement as both an instrument of autonomy and of insurance, many of these women became highly ambivalent. At one level, they welcomed the opportunities for enhancement and growth but, at another level, found that these opportunities did not provide them with the desired self-worth and respect. It became extremely difficult for these women to value themselves and their existence; the insecurity of their relationships filled them with guilt, anxiety, anger, and resentment, and a sense of helplessness at being considered a burden in the community.

The new scenario, which then emerged about women, was based on reality appraisal. It reflected the following characteristics:

1. Women excel in every stream of knowledge and occupy key positions, including leadership, and shape the destiny of the organization
2. Women are ready and respond to challenges and opportunities of the environment
3. If the role requires mobility and travel, they travel across continents and successfully complete the assignments with high performance
4. Their professionalism lies in managing their time, space, roles and systems, and most important, people. They can be gentle and tough as people and situations require
5. Professionalism has made women managers accept weekend and long-distance marriages, as well as bringing up of children. Women experience stress but they have also learnt to cope with the complexity of handling their emotions and duties

Industrialization in India and Emerging New Roles of Women

Time moved on. As society evolved new patterns, meanings changed, nature of social structures and hierarchy was altered, and roles of men, women, and hierarchy attained new dimensions. Women too internalized the agrarian model crystallized by Manu: 'Women are to be property, owned and protected by a successive set of males'. They never recognized their own potentials, aspirations, or inner urges.

Their role was to adjust to, adapt, and accommodate within the given circumstances. They were expected to sacrifice and suffer for the well-being of their families.

As such, all the processes of cultural, social, and familial socialization anchored in the agrarian model of living and relationship came to direct confrontation with the experiences, expectations, and aspirations of today's role requirements of women. Coming to the twenty-first century, and specifically in the last six decades, women made significant shifts in the social structure, in their role taking in family settings and the external environment. One such significant shift has been their transition from homes to that of formal work organizations, and their responsibilities from social affinitive relations to managerial, leadership, and entrepreneurial roles.

In the post-independence era in India, with fast-paced industrialization, complex technologies, professionalization, and institutionalization, women faced a new challenge. Industrialization created new opportunities and role spaces for the women of India. The new aspects focused on formal work organizations, managerial and leadership roles, which are the unique entities of contemporary time and age.

Shattered Myths

There are many myths, which women themselves have lived by and have been believed by various institutions in society. However, slowly but steadily, these myths have shattered. Women have learnt to emerge in their new roles.

1. Women are not mobile. They only live with their families, namely, husband and children. Women are wives and mothers first.
2. Women cannot travel in all places and do real field-level operations or work. Women require protection and a certain privacy and comfort level.
3. Women can only do routine jobs. They cannot be given highly risk-taking roles. They do not understand the market place.
4. Women need to constantly check and recheck with supervisors. They do not accept accountability or responsibility. In effect, they cannot take tough decisions and seek comfort in validation.
5. Women cannot leave home and children. Women are caught in the home-work interface. The balance of work and life takes away

their full involvement and commitment. They need to ensure about their children and home and then work and the organization.

6. Exclusivity of traditional social roles of the earlier generation or young modern women who detest traditions.

7. What women can and cannot do at work is anchored in the traditional agrarian society of social roles.

8. Women entering management to provide the jam for the bread and butter provided by men. For many women work is time pass.

9. Women cannot take policy decisions and make strategic choices for organizations. They can be implementers, fulfilling instructions.

10. Complex technology and women do not go together.

These and many more myths came to be gradually shattered as women began to receive education and surpassing all expectations, performed with excellence.

There are many more myths that continue to persist, but have been shattered with women emerging into new roles. There are many women who have successfully enacted their parenting roles and have been equally involved and committed in their professional roles.

Let us look at the lives of such women. Starting from the 1940s onwards we journey beyond the twentieth century and move towards the new millennium. Exploring how women of present times have travelled a long way and created a niche for themselves, both at home and at the workplace, we have examined the space they have created for themselves in the socio-cultural context. We have also reviewed how they have managed the new roles and have given shape to new patterns of identity to meet the challenges in the next millennium.

Women's Role from the 1950s to the Next Millennium: Five Phases

Phase One: Women in the 1950s

The women of the 1950s fall into two categories. Two sets of women entered the job market for two distinct reasons. One set took up jobs exclusively for economic and monetary reasons. These women were educated and the family required the resources. The second set belonged to business and professionally oriented families. The women

Educated and waiting for marriage	Good Use of time and education	Gave up job after children—dominance of motherhood	Being grateful to in-laws for letting them work	Social codifications of relationships
Pushes and pulls of two systems	Did not rise in heirarchy	Feelings of guilt and anxiety	No role models of women available	Job oriented
	Held on to whatever was available	Difficulty in exercising authority	Discrimination and deprivation at home and at work	

were educated, not compelled to do household chores, were intelligent and capable, and wanted to utilize their education and or their time in purposive activities. Some women entered formal work organization or businesses due to the loss or death of a family member when the women had to take on the task of income generation along with the burden of home responsibilities. A large number of these women took on marginal and infrastructural service roles. They brought the baggage of social structures, roles, and relational processes. The organizations and the men too related the women with certain social structures and social role expectations. These women, men, and organizations focused on the job but also related with each other in traditional social roles.

In the initial phases of industrial and technological growth and setting up of large complex organizations, the roles women took in management were marginal and infrastructural services roles. The beliefs that existed were:

1. Women who entered the workforce were educated and were waiting for marriage
2. Those who were married and not in need of money, entered work to keep themselves occupied and make good use of their education till the time they had children
3. Those not in need of money once married will give up their jobs in the organization or at best when the children came

4. Those in need of money after marriage will continue to work and be grateful for having a job and a steady income

These pioneer women were the first entrants in the Indian workplace. They discovered that work provided a meaning to their life and highlighted a new facet in their personality. The newfound meaning created anxiety in the social system. The women themselves experienced work as a privilege. It gave them confidence, a steady income, and the opportunity to make good use of their education . The first-generation working women were forging a new role and space for themselves and were also charting a path for women of future generations.

Phase Two: Women in the 1960s and 1970s

Educated with aspirations for career growth	Regarded work as integral part of life space	Career-oriented role models of men	Career was insurance against maltreatment by in-laws	Could walk alongside men
Home and career both were significant	Participate in management and decision making at the workplace	Income added to social status—dilemma of choices	Did not make choices, only compromises	Career oriented
	Pressure from families continued	Became assertive and aggressive	Income and career both were significant—balancing act of motherhood and work role	

By the mid-1960s, women in significant numbers had entered the portals of formal education both at the primary and higher levels. In the realm of work, women opened up new frontiers.

In this phase, education provided increased knowledge base for both men and women and organizations experienced unprecedented growth opportunities. This led to a faster pace of movement in the

career paths of employees. Some of the new realities of women in management in India in Phase Two of their career path reflect the following patterns:

1. Women regarded work as an integral aspect of their life space
2. Income generation and career choice, both were equally significant
3. Educated and qualified, the women aspired for a different role and life vis-à-vis their mothers and grandmothers
4. Women wanted home, marriage, and children as well as a career
5. Women accepted the social traditional role behaviour from the older generation, but from their husbands, colleagues and children, they expected understanding and support in their career paths. They looked for redefinition of roles and redesigning of systems

In managerial roles, women were willing not only to carry their share of work responsibilities but also wanted participation in policy formulation and decision making. They wanted their voices to be heard as stakeholders and managers of the company

In essence, the generation of women who entered management sought jobs and careers, which gave significant meaning to their lives. Work was not just a job to manage their boredom or put education and investment to good use. Work was significant in itself. Moreover, working women had acquired an immense significance in the social system. In the social setting, a job was a life-time income generation and an insurance against maltreatment or mistreatment by the in-laws. A job had also become a means of respect and had proved its potentials of giving them autonomy and self-reliance. The income also added to the social status and a quality of lifestyle in the extended family.

A significant number of women from the 1950s and 1960s graduated from junior level of management and entered middle-level management. Highly qualified postgraduate women entering the organization directly at responsible management positions further reinforced the female contingent at middle management organizational levels. These women were equipped with management knowledge, skills, tools, and techniques. As stated earlier, education proved to be the major enabler

for success. The women began to earn respect from their superiors, colleagues, and subordinates.

This new space and new role taking broke many social stereotypes and myths about women, and their abilities. Women in senior professional positions brought about dilution of gender stereotypes and myths about what women could achieve. There was a sea change at the organizational level from skepticism about working women to acceptance of their rightful location and space in the corporate world.

Phase Three: Women in the 1980s

Career was an accepted dimension of life space	Integrated social identity with professional identity	Sought partnership in managing home/work interface	Transformed barriers into opportunities	Traditional culture/norms were integrated with new roles
Acquired a corporate perspective—paid the price for choices	Policy/strategy and corporate membership were legitimately seen as their role	They had role models of the previous two phases of women	Created acceptance of work role and space in the larger social, cultural, and external environment	In-laws started accepting and taking pride in daughter-in-law's new role
	Dual career/income created role re-definitions, enhanced quality of education children	Multiplicity of roles in multiple systems	Profession oriented	

This was the era of professionals and professionalism. Women of the 1950s, 1960s, and 1970s had accepted both their social and work roles. They played the social role in the traditional mode and to some extent extended it to the organization. They rode two horses and kept the

spaces separate. For women, work and working in organization were necessary but for a large sector of women in management, marriage was equally important and so was motherhood and social relations. The women of the 1980s attempted to bridge this dichotomy and lead wholesome rather than fragmented lives. They attempted to broaden their personal vision to encompass both career goals and familial relationships. The women of the 1980s had invested in themselves, designed a role and life space where they could manage their home and work interfaces and respond to the challenges and opportunities in the formal work organization.

A major difficulty for women of the 1980s had been the dilemma of 'either/or' choices. When women moved from the location of job orientation to career orientation, they believed that their social roles and systems and existing relationships had to be sacrificed. They have postulated and very often rightly so, that the social systems, role, and relationships anchored in traditional culture becomes a barrier and constraint to their growth in career and making choices in the organization. Confronted with this, many women opted for limited job orientation and remained rooted in social systems, roles, and relationships.

Women, who chose their career paths, believed that choice of a career meant sacrificing a part of themselves and their identity. They had troubled marriages or experienced upheavals in their personal lives and roles of wife and mother. Also, they anchored themselves in their organization and work. This choice also left the women feeling denied and deprived. They overloaded the organizations in their search for meaning and fulfilment.

Phase Four: Women in the 1990s

Women of the 1990s emerged as a qualitatively different breed of women. The upbringing and education of women in the 1990s was different from what it was for women of the prior generation. Women in the 1990s increasingly had role models anchored in their own gender—mothers, aunts, and teachers who themselves have had successful careers and who inspired the young women of 1990s to take up new challenges, explore new vistas, find fulfilment, and compete

Educated with an objective of pursuing a career	Gained a lot of self-confidence and self-esteem to be part of home, society, and workplace	Husband, girl parents, in-laws, crèche facilities—all help her to achieve her goals	Maturation of leadership role within the corporation	Support systems from within the home and family
Take up challenges, explore new vistas, competes with men on their turf	Searches for job satisfaction and fulfilment of her professional aspirations and dreams	Has been able to strike a balance between home and career which has given the women of today a lot of satisfaction and self-worth	Coming of age, lesser need to rebel, more pragmatic	They have men and women as role models
In-laws having changed mindsets for a quality of life and providing support systems, which help the women of today. Women continue to grapple with issues of work with guilt or fear. Movement from nuclear family back to small joint families	Due to competition and survival of the fittest, women have to struggle their way to the top. In spite of that very few have reached the top coveted managerial positions due to the glass ceiling syndrome		Home and profession-oriented	

and work with men in any assignment. The generation of women growing up in the 1990s has also had support from the males in the family, that is, the fathers as well as other males in the primary system. This attitude of openness facilitated women both at the social as well as work settings. These men provided equal opportunities for both men and women, and logically and rationally accepted career planning and growth for women. The daughters were encouraged to stand on their own feet and be financially sufficient and only then get married. Financial independence generates self-reliance and autonomy as well

as equality in status. Men who nurtured women for such autonomy were mature, largely professional, and accepted women as their equals. These men opted to choose a capable, confident, and an intelligent woman as a life partner and accept that women require their own spaces and pace for growth and unfolding. This does not mean to convey that women have successfully overcome the socio-cultural inhibition and barriers, which are so deeply embedded. This statement only reflects that a transition and a transformation are occurring in the Indian families more so in the urban centres of India.

Women of the 1990s performed exceedingly well in the organizations as they came through as determined, assertive, and committed to work. They also experienced had better relationships with their colleagues and added to the overall collectivity of the organization. In addition, the women were described as having inherent qualities of management, such as patience, tolerance, honesty, loyalty, and communication skills. Essentially, the women of the 1990s created niches of their own. They were ready to perform the multiple roles of mother, wife, and executive, thus creating a space for themselves in family, society, and at the workplace.

As women are heading towards the new millennium, the convenience of telecommuting and flexi-time is a facilitator. With the advent of information technology and the Internet, and the concept of virtual classrooms, women of today have nothing to lose, but gain, learn, unlearn, and update themselves in the information age. They can use the opportunities for freelance assignments and succeed with the full satisfaction of bridging the gap between home and workplace.

As always, change has not been easy but the fact that Indian women now occupy positions and rightful place in the corporate world bears testimony to their fortitude, patience, and courage. This article also explores the women's role in the new millennium having travelled a long distance. Women in management now need not be the rebels of the past, but can enjoy lifestyles that do justice to both home and work. Flexible corporate structures and norms, enabling technologies, and liberalized societal expectations facilitate women to climb the upper rungs of the corporate ladder without necessarily sacrificing their femininity and/or role of motherhood.

Phase Five: Transition Towards the New Millennium

Education and career as a natural process of growing up	Surfing the new and searching for new opportunities and facing the challenges with ease	Fulfilment both in career and motherhood; Creation of a home, single woman status or single parenting as an accepted option	Would be respected, idealized, and looked up to by future generations for her multiple roles in family, society, and workplace	More and more women would be able to survive the competition and reach top positions
Bridging the gap between home and career through information technology and virtual organizations	Superwomen—managing multiple relationships in multiple systems	Would be self-contained and less dependent on support systems	Would be able to send benchmarks and would be able to become role models for future generations	
Women working from home or taking up part-time jobs or working flexi hours are less dependent on familial support systems due to flexible organization structures and enabling technologies. Emergence of secondary support systems	Would have orientation towards happiness, overall fulfilment in different aspects of life, increased sense of societal responsibility. Transition of 'me, myself' to a broader societal orientation	Would be able to make new choices with ease and confidence as she feels anchored in herself; increased maturity and location in spaces		

The Five Phases at a Glance

Phase One (1950s)	Phase Two (1960s and 1970s)	Phase Three (1980s)	Phase Four (1990s)	Phase Five (Transition towards the new millennium)
Educated and waiting for marriage	They were educated with aspirations for career and growth	Career was an accepted dimension of life space	Educated with an objective of pursuing career	Education and career as a natural process of growing up
Good use of time and education	Regarded work as an integral part of life space	Created the acceptance of work role and space in the larger social, cultural, and external environment	Takes up challenges, explores new vistas, competes with men on their new turf	Surfing the new and searching for new opportunities and facing the challenges with ease
Gave up job after children; dominance of motherhood	Income and career both were significant balancing act of motherhood and work roles	Dual career/ income created role redefinitions, enhanced quality of education for children	Searches for job-satisfaction and fulfilment of her professional aspirations and dreams	Fulfilment, both in career and motherhood. Creation of a home, single woman status or single parenting as an accepted option
Grateful to in-laws for letting them work	Career was insurance against maltreatment by in-laws	In-laws started accepting and taking pride in daughter-in-law's new role	In-laws having changed mindsets for a quality of life and providing support systems, which help the women of today.	Women continue to grapple with issues of work with guilt or fear. Movement from nuclear family back to small joint families. Women working from home, or taking up part-time jobs or working flexi-hours, less dependent on familial support systems due to flexible organization structures and enabling technologies. Emergence of

(contd...)

(contd...)

Phase One (1950s)	Phase Two (1960s and 1970s)	Phase Three (1980s)	Phase Four (1990s)	Phase Five (Transition towards the new millennium)
				secondary support systems
Social codification of relationships	Could walk alongside with men	Multiplicity of roles in multiple systems	Gained a lot of self- confidence and self-esteem to be part of home, society, and workplace	Superwomen- managing multiple relationship in multiple systems
Pushes and pulls of two systems	Home and career both were significant	Sought partnership in managing home/work interface	Husband, girl's parents, in- laws, creche facilities—all help the women of today to achieve her goals	Bridging the gap between home and career through information technology and virtual organization
Did not rise high in hierarchy	Participate in management and decision making in workplace	Policy/strategy and corporate membership were legitima- tely seen as their role	Due to competition and survival of the fittest, women have to struggle their way to the top. In spite of that very few have reached the top coveted managerial positions due to the glass ceiling syndrome	More and more women would be able to survive the competition and reach top positions
Feelings of guilt and anxiety	Income added to social status— dilemmas of choices	Traditional culture/norms integrated with new roles	Has been able to strike a balance between home	Would make new choices with ease and confidence as she feels anchored in herself;

(contd...)

(contd...)

Phase One (1950s)	Phase Two (1960s and 1970s)	Phase Three (1980s)	Phase Four (1990s)	Phase Five (Transition towards the new millennium)
			and career which has given the women of today a lot of satisfaction and self-worth	increased maturity, and location in spaces
Held on whatever was available	Did not make choices, only compromises	Acquired a corporate perspective; paid the price for choices	Maturation of leadership role within the corporation	Would be respected, idealized and looked up to by future generations for her multiple competency and capability
Difficulty in exercising authority	Became assertive and aggressive	Integrated social identity with professional identity	Coming of age, lesser need to rebel, more pragmatic	Would create new role spaces for her multiple roles in family, society, and workplace
Discrimination and deprivation at home and at work	Pressure from families continued	Transformed barriers into opportunities	Support systems from within the home and family	Would be self- contained and would be less dependent on support systems
No role models of women available	Career-oriented role models of men	They had role models of women belonging to the previous two phases	They have men and women as role models	Would be able to set benchmarks and become role models for future generations
Job oriented	Career oriented	Profession oriented	Home and profession oriented	Would have orientation towards happiness, overall fulfilment in different aspects of life, increased sense of societal responsibility. Transition of 'me, myself' to a broader societal orientation

A New Landscape and Road Map for Women in India

Women in the 1990s often questioned the traditional coding of their roles and became conscious of the voice of their own identity. With economic independence, women have acquired a high self-esteem and have discovered that they are able to deal with situations single-handedly. In situations of mismatch in marriages, physical violence, demands for dowry, pushing the women into socially-conforming roles, and other forms of social-psychological harassment, women do stand up to make their statements and make difficult choices. Today's women are fearless. They have learnt to live alone, travel alone, and rear children alone if failures in marriage and life partnerships occur. Some women have preferred to remain single, are leading happy and contented lives and are successful in their work. Many couples today, opt for leading a life without children, and prefer to focus on work, relationships, and the joy of experiencing freedom. More and more women in the 1990s have made up their minds to have a single child in order to meet the demands of home and work and have very well been able to integrate their multiple roles in multiple systems.

Characteristics of Women of Today in Managerial and Leadership Roles

1. She is dominating, as well as assertive
2. She brings determination and perseverance in her work
3. She is committed and involved and brings her vision to the organization
4. She is ambitious as well as competitive and shapes a different feminine model of an organization
5. She brings professionalism to empower her people
6. She is capable and competent and can take managerial and leadership roles
7. She scans the environment to respond to opportunities and challenges

The current scenario of women in management reflects a tremendous flux and transition. Women are entering management in increasingly large numbers. They come from all walks of life, diverse sectors of society, differential educational qualifications, and for immensely varied reasons. Every organization in India who hires women will have a mix of all these women in management. The attitudinal scenario of women

in management also reflects the stereotypes as held by both women and men in management. Management training programmes run by the company suggests that formal education and entry into management makes women cognitively aware of managerial roles. However, effective organization behaviour may not occur. The process of socialization at home and work reinforces the dilemma. Their own aspiration for economic autonomy pushes them to create new space, meanings, and action choices.

The present scenario for women in management reflect the following themes:

1. Women who are in key positions respond to the job, task, and organization requirements
2. They accept challenging tasks
3. If the task requires mobility and travel, they travel
4. Their professionalism lies in managing their time, space, roles, and systems
5. Professionalism has made women managers accept weekend and long-distance travelling, as well as bringing up of children

Women in management experience diverse spectrum of relationships with people in formal work settings. They have varied experiences while enacting their dual roles of being a manager and a woman in India. This reflects a partial reality from a segment of population and a limited perspective. In the current scenario, women in management are witness to all past changes. The largeness of the country and its diversity and the process of flux and transition at one level make the organization context and issues of women in management a dynamic setting in which changes are occurring. The larger the participation of women and better their performance, the more is the acceptability of women in management.

Future Scenario

As industrialization takes firm roots and formal work, organizations establish themselves with a professional orientation of women's role in management. Women's role in policy, strategy, partnership in corporate structure and processes, and leadership has not only acquired new dimensions but will also acquire a momentum. This will contribute to the breaking down of the existing myths about women in management and lead to realistic appraisal of women's role in management.

The future scenario for women in India is to walk an uphill path, to transcend the monolithic social structures, to create new processes in the culture, organization, and social systems. The women of the next millennium will influence the social structures and culture by presenting a new role of being a professional, a new kind of a daughter, wife, and mother—truly a homemaker and fostering a family.

Today at the dawn of the new millennium, women are at a crossroad and at the threshold of a new life. They are the children of a new millennium and have the possibility to explore new frontiers within themselves and in the external environment. What choices do they make to realize their dreams and aspirations? The best alternative is for women to take an adventure and to search for their own identity. Rather than men, society, or the system, women need to look within, re-discover themselves, and become change agents for the society. Fortunately, many women of the twentieth century have taken an adventure into the unknown and have achieved landmarks in their careers and in their lives. They have the courage of conviction to create new roles for themselves, explore the meaning of their existence, and forge an integrated identity, including their multiple roles in society and at their workplace. They have claimed their existential and psychological identity beyond the social roles.

The next millennium offers a space beyond the present horizon—where, instead of hope there is active engagement with the world, instead of dreams there are commitments, instead of aspirations there are choices, instead of ideals there are convictions, and instead of searching for bestowals and affirmation there is the acknowledgement of one's own uniqueness of identity.

The women of today will discover the magic of enlivening themselves and say, 'I have travelled thus far, there are further distances to travel but there are also moments in the here and now where I can be and become.' In this statement, the past, present, and the future will merge to create that space where movement and stability, noise and silence, light and darkness, chaos and tranquility lose their absolutism to create a new rhythm and unfolding.

Unique Configuration of Women's Life Space

1. Upbringing in the family and educational institutions

2. Role models in childhood from family, educational institutions, and socio-cultural context
3. Dreams and aspirations from childhood
4. Entry and career paths in work organizations
5. First job and the first organization; later, shifting from career focus and evolving as a professional woman
6. Entering into leadership roles and taking charge of organizations and institutions to provide directions
7. Accepting the potential synergies between managing home and work
8. Responding to dilemmas and conflicts, pulls and pushes across multiple roles and systems
9. Moving away from balancing home and work and creating a dynamic equilibrium
10. Defining success and accepting it with humbleness and humility
11. Growing personally and professionally as reflected in wholesomeness and well-being
12. Creating a landmark for oneself
13. Bringing difference to others' lives
14. Celebrating life, its magic, and its mysteries

In this century, it is inevitable that with dramatic transformations, women will emerge as somewhat similar, but also dramatically different from their mothers, grandmothers, and ancestors. Women of today and tomorrow have put down the roots of a family and in the family they are rooted. In putting down the roots, they accept and own the concept that they have a home, their space and place, which they can call their own. They have also learnt to dream and aspire and accept the freedom of sailing in the open seas. In this the women visualize a new horizon, identify directions for themselves and their people, and chart out a path which has a meaning for them and their families. They have discovered that they can make tough decisions and navigate themselves through rough seas and emotional storms. In the cacophony of sounds echoing the past with the social and cultural codings, they can code a new language with aspirations, dreams, and hopes with confidence, assertiveness, and courage. The women of today and tomorrow have crossed the threshold to listen to their own voices and make their personal statements. They grapple with the values and philosophy of

the present and a new era, which is rooted in the past. The silence and inner solitude of centuries of women have found her first voice, which beckoned women to gaze at the sky and the stars, to look beyond the horizon on the shimmering vast open ocean, and to find the courage to sail into the unknown and uncharted land to lay the foundations of their own growth.

However, when they do this there are sectors of society which herald and celebrate the new and special women. Moreover, at the same time there are those who batter the women for finding their voice and living their own lives. But then, women reflect and say to themselves—‘so be it’ and choose the path that they choose to walk.

Swati Piramal

MULTIFACETED ROLE OF WOMEN IN SOCIAL TRANSFORMATION

To enhance growth, India needs to unleash the potential of women, which make up half its population. Several steps need to be taken today to make sure that their potentials are realized in the future. This article deals with three questions: Why are women vital in the transformation of society? What can be done to reduce the hurdles that are faced by women who study science? Which strategy should be followed to increase the contribution of women scientists?

Significance of Women in Effecting a Transformation

The role of women in bringing about a social transformation is considered vital. The following factors provide us with an insight to the understanding of women power.

Mothers of the Race

Women are mothers of the race they belong to and show genuine interest in things that are around them, that are common in life. A man shows interest in his fellow beings for a purpose, but a woman feels interest in all beings because they are humans and because she likes to extend her love beyond fixed parameters.

Instilling Stability

The idea of stability is deeply cherished by a woman. She occupies the throne given to her by nature. She does not like to vacillate, shooting wanton arrows of curiosity into darkness. All her forces instinctively work to bring things to some shape of fullness, as she considers that the laws of life lie within them.

Power Comes with Harmony

In recent times, financial markets tend to behave like a roller coaster moving in complete darkness, built on greed and power of gargantuan proportions. It is apparent that the world has travelled through the perilous path of miscalculation and ruins. A mere unlimited augmentation of power does not lead to real progress and there must be a balance of proportion and structural harmony with the foundation to indicate real growth.

These creations are like the towers of Babel; they dare to defy their foundations and therefore, topple down repeatedly. Thus, human history is growing up over layers of ruins; there is no continuous growth. Women, however, clearly understand that harmony and power are interlinked.

Imparting Rhythm

Our civilization is crashing along a series of catastrophes at a tremendous speed. There must not be mere growth, but a rhythmic harmony of growth. Women are like banks to a river; they guide into permanence the current which otherwise would lose itself in the morass.

Believing in a Strong Purpose

When males indulge in fighting to kill one another, females are mindful of the purpose of life. In the insect or animal world, we find females protecting their families.

Loving the World

Man has to do his duty in a world of his own, where he is always creating power and wealth, and organizations of different kinds. Rabindranath Tagore (1861–1941) had observed:

God has sent woman to love the world, which is a world of ordinary things and events. She is not in the world of the fairy tale where the fairy is touched by the magic wand. In God's world, women have their magic wands everywhere, which keep their hearts awake and these are not the golden wands of wealth nor the iron rods of power.

Believing in Inclusiveness

A woman restores the lost social balance, putting full weight on every creation of the human world. Therefore, woman must come into the bruised and maimed world; she must claim responsibility for each human being, even the useless and the insignificant. She must protect with her care all beautiful creations of this world.

Women in Science

Marie Curie (1867–1934) was perhaps the most famous woman scientist of all time. She became a leader in science and an icon for women scientists. Today, women's role in science and her contribution to transforming society are being recognized as vital. The European Commission observes, 'Under-representation of women in science threatens the goals of science in achieving excellence, as well as being wasteful and unjust. If Europe needs to invest 3 per cent of GDP in research by 2010, we need to mobilize all resources, especially women.' The Greenfield Report, USA, asserts, 'The gender imbalance in science and technology threatens to weaken the country's competitive economic position.' An article titled 'Where are the Women?' in *The Scientist* mentions, 'Women often bring a different view to a problem, a different way of addressing it. If you don't have women in the group, you can end up with very cloned ideas from a cloned group.'

Barriers to Women's Career Progression

Though the contribution of women in the realm of development is gradually being considered important, women have to face many hurdles to attain success. Some of these problems have been discussed as follows:

Human Resource Management

Human resource (HR) management is the process of recruiting, selecting people to positions, managing performance, rewarding them for their contributions, and providing them with appropriate development activities.

Effective HR management is important, as the outcome of some HR practices can be less favourable for women than men. Central to these issues is the formality of the human resource management process, the attention given to the merit principle, and the validity of the processes used. Implementation of a firm sexual harassment policy is also crucial for the employer.

Merit

In a university, merit underpins appointments, promotions, and research evaluation. In the case of scientific research, it is based on number, type, and quality of publications and patents filed, and peer review. In science more than any other field, 'what counts is socially constructed', and performance is hard to judge and more subjective in comparison to other fields like sales, where performance is based on goods and services sold. Men and women have different perceptions of organizational practices. Men, generally claim that equal opportunities have been provided to both genders, but women disagree. *Nature* reported in September 1998 that 'factors disadvantaging women are much less widely acknowledged.' Women scientists earn less, have less prestige within departments, have less laboratory space, get worse jobs on graduating with science degrees, have more teaching responsibilities, have more difficulty getting grants, and apply for fewer grants in the first place.

Recruitment

Most organizations favour the use of informal recruitment and selection processes, such as the use of small social networks and employee referrals. Recruiters tend to determine job requirements according to the current job holder's gender. When these jobs are perceived as being held more often by one particular sex or the other, applicants of that

sex are preferred for example, engineering. This sorting process leads to stereotyping of men and women's jobs.

Bias can also arise in the recruitment and selection process. Casting a wide net to attract applicants from outside mainstream groups requires more effort, as does putting together a panel of interviewers, representative of a diverse candidate pool. Job related criteria for stability, flexibility, and mobility might create a bias against women. There is widespread view amongst men that women are by nature unsuitable for work, that is, 'difficult' or which requires strong leadership; rather they are more 'suitable' for nurturing and support functions.

Training and Development

Access to high profile development (such as conferences or job opportunities abroad or work in high profile projects) is often gained through informal networks and mentors. Research shows that women tend to lack access to informal networks that provide such opportunities. Thus, women lack the work experience that leads to promotion and access to the wide range of developmental experiences and activities that build credibility needed to advance.

Performance Assessment

Performance assessment is one of the elements of the performance management systems implemented in recent years, as organizations tend to move away from the narrow concept of training and development of skills. Veto points include bias by the rater, inadequate documentation, absence of training, and unclear performance standards, making performance criteria inherently subjective.

Mentoring

Mentors help build self-confidence and professional identity in their protégés. They provide access to developmental opportunities that allow people to demonstrate ability and become trusted. Mentors keep information channels open and provide feedback on performance in crucial times. It was found that almost all successful women had mentors at some time. However, there are fewer opportunities for women to build mentoring relationships than there are for men. This

is partly because there are few women at the senior level and partly because of the difficulties associated with male–female mentoring relationships (the relationship is quickly perceived and most often wrongly so as a sexual one).

Organization Culture

The culture of the organization affects those who work in it. The culture is underpinned by values, which may negatively affect women. Stereotyping and discrimination are perceived by men and women differently and can affect work in various ways.

Organizational culture may be defined as the realities, values, symbols, and rituals held in common by members of an organization and which contribute to the creation of norms and expectations of behaviour.

The values, which underpin most organizations, and thus define success, often include money, power, and status. The corresponding behaviours include working for long hours, being competitive, and showing a willingness to put work above all else. These values and behaviours are thought to be more masculine. Owing to gender discrimination, thus, women often find themselves selected or assessed on the basis of group membership rather than on their experience and abilities.

Conflict of Organizational Culture and Women's Values

Women often choose not to apply for senior positions, because they believe that they cannot have a balance between work and family. Organizations are often not built to accommodate women's values and experiences. In part, this is because women enter many organizations late and work in narrow areas of work. Use of such facilities, such as maternity leave or flexi time may signal that women are not committed to work and cannot be considered for more challenging assignments.

Gender Differences in Perception of Discrimination

Perceptions of male chief executives of Fortune 1000 companies were vastly different to those described by women. Where men thought women were not chosen for jobs because they lacked specific training,

women thought that male stereotypes were holding them back. Stereotyping is a process of categorization, which if used, can result in an assessment of an individual who is in a group membership, rather than his/her individual abilities, for example, male jobs require males. Contrary to commonly held stereotypes, research has indicated that there are few differences in terms of abilities, attitudes, commitment, management styles, or leadership attitudes between the genders.

Work and Family

Family commitments of employees can have influence on the way in which co-workers, including managers, perceive them. Even when organizations address family commitments with specific policies, women employees perceive personal disadvantage or possible career penalties if they use them.

Several (often complex and intangible) barriers prevent women from progressing in their careers in the same way as men. However, women who reach senior levels often recognize these barriers and develop strategies to overcome them. The difficulty women have combining paid work with primary responsibility for dependent care is interpreted by some as a lack of women's commitment to paid work.

Commitment is generally perceived in those who are willing to work long hours, to undertake extended travel, or to put the needs of the organization first. Employees who demonstrate these are seen to be highly productive. Given women's primary care responsibilities, the use of these criteria may lead to perceptions that women are not committed.

A study revealed that only 3 per cent of the women surveyed regarded family responsibilities as the most serious obstacle while 50 per cent cited gender bias; only 7 per cent of the female employees surveyed reported leaving the organization for family reasons, whereas 73 per cent reported leaving because of limited opportunities for women in the organization; however, quit rates for women were significantly lowered when training and promotion opportunities were improved.

Women often accommodate work and family by taking up part time roles, but these are seen by others as less important and often less remunerative. Traditionally, it is believed that commitment is demonstrated by being present, working for long hours, working full time, or being available at all times. Mid-career pressure points

exacerbate attrition, as women tend to go away from jobs while looking after family issues.

Key Strategies for Overcoming Barriers

Women who reach senior levels recognize the barriers obstructing their growth and success and develop strategies to overcome them. They identify mentors, seek challenging assignments, ensuring that they consistently exceed performance expectations develop a management style that is non-threatening to male employees.

The number of working mothers has increased rapidly over recent decades, but many workplaces have not altered the expectations of employees or provided work policies favourable for mothers so that they are able to balance work and family responsibilities. Patterns of women participating in science have changed over the last century. The telecom revolution and the internet have made distant work possible, changing the concept of a fixed workplace forever. Organizations need to change the way women are recruited, trained, promoted, and retained, if these barriers are to be overcome. For the development of science, more research needs to be put in and this may be attained by realizing the full potential of women and increasing their involvement.

In my company, the Piramal Group, the workforce comprising women scientists have risen from 10 per cent to 50 per cent. Our first patent was filed by a patent attorney on maternal leave via the internet. Women are making important discoveries in cancer, infectious diseases, and metabolic disorders in our research facility. The work done has been patented globally and accepted by global regulators. Clinical trials have been performed across five continents. Our goal is to make affordable and innovative drugs available for the common people. To attain our goal, Indian scientists must provide answer to the vast health problems in our country and the role of women in transforming science and society has become extremely critical.

Pratibha Ray

BEYOND THE HORIZON

My childhood dream was swimming against the tide to touch the horizon. My mother Manorama Devi used to caution me repeatedly but I could not hold myself back. She would call out, 'The sun is setting, are you not afraid of darkness? Being a teenage girl, where are you going on the cycle along the canal every evening?' In those days, girls were normally not seen riding cycles in my village. Hence, I was considered a deviant.

Breaking the mould

'Mother, don't you know that I am going to touch the horizon and explore what lies beyond it?' I used to answer her back defiantly. Every day, I marked the palm tree on the embankment of the canal in my village with a chalk aiming to cycle further ahead the following afternoon. The horizon seemed to me not far off, but very much within my reach. The crimson-coloured setting sun seemed to sink into the russet water of the canal. My mother disappointed me every afternoon saying, 'However fast you ride the cycle, you cannot touch the horizon. The horizon is not a reality. It is a myth. Your father reads fat books of science like a student every day; ask him whether I am wrong.' I was too intoxicated to touch the horizon and did not give up my efforts till I passed my school exam and left the village to read science in Ravenshaw

College. Pursuing higher studies in Ravenshaw College was also my adolescent dream.

My father, Parasuram Das, a science graduate and a brilliant student of Patna University, left a lucrative job at Tata Iron and Steel Company to educate the rural mass and became the first head master of Balikuda High School during the Quit India Movement, in 1942. He was my open encyclopaedia, as well as teacher, friend, philosopher, and guide. As a child, I often used to ask my father two questions: 'How far is the sky and what lies beyond the sky'. I was sure that the kingdom of God (Swarga) was beyond the sky. My father's scientific answer never satisfied my quest for the unknown but his philosophical answer compelled me to imagine a heaven on earth. My father would answer: 'There is no Heaven, no Hell. Man can make heaven or hell of this beautiful earth by his deeds.'

The stark reality around me highlighting human suffering, poverty, and deprivation perturbed me. The outward religiosity and inward selfish motives of humans disillusioned me. Where was the heaven where God resides which was charged with love, compassion, hope, aspiration, and dreams for all humans? Was it beyond the sky? Was it beyond our reach? Perhaps that was the real world, with one God and one destiny. Such was my concept of heaven in childhood.

The scenic beauty of nature, yet the suffering of humanity around me in the poverty-stricken village compelled me to yield my feelings in pen and paper from my school days. Being a writer, housewife, and a working woman, I have faced obstacles in many ways to become what I am today. I challenged all hurdles and gradually loved to swim against tide and walk on a tight rope, not afraid of drowning or falling down.

Going down the memory lane, I hear my father saying: 'My daughter will become a doctor, as well as a poet like Utkal Bharati or Kuntala Kumari Sabat of yester-years.' But the sensitive school girl in me nurtured a dream to become a writer and not a doctor. I left medical college just after taking admission to fulfil my dream and continued with my science education in Ravenshaw College, Cuttack. My father did not know about this. My father's dream was shattered when he came to know that I was studying life science in Ravenshaw College and not reading medical science. After my graduation, I married Akshaya Chandra Ray, an engineer, and became a part of an orthodox joint family in rural Odisha. It was an arranged marriage. Soon I became suffocated in a hearth-centric life. I was blessed with one daughter

and two sons within three years of marriage. With time, my dream of becoming a writer took the backseat. My two elder sisters-in-law never stepped their feet outside the house premises and like them I too led an imprisoned life. However, the writer in me was not lost in spite of all odds. My father insisted me to continue writing.

After sending my three children to school, I did my masters in education and PhD in educational psychology. My post-doctoral research was on the criminal propensity of the Bondos, one of the most primitive tribes of Odisha. I started my professional career as a teacher in a government school under the Department of Tribal and Rural Development, Odisha. My first experience with the tribal children and their problems in adjusting with the school life and education was challenging for me. I brought some reforms in the education system and school administration during my four years' tenure as the head mistress of the school. I protested against corrupt practices of certain officials and had to face their stiff opposition. However, despite such odds, I remained undeterred. Later, I switched over to Ravenshaw College as a lecturer and served for thirty years. When nominated to the Public Service Commission as a member, I took voluntary retirement and joined the Public Service Commission. I completed my six years' tenure successfully.

Just after marriage, I had stopped writing for five complete years, not because of my household chores, teaching profession, or being the parent of three children, but because I did not get the consent of my husband, who was born and brought up in an orthodox affluent landlord's family. Convinced by my father, I promised to break the silence and my first novel was published in 1974. It was readily accepted by the readers with love and admiration and they demanded more from me. It was indeed very much inspiring and gave me immense strength and confidence to go ahead. I kept on writing late in the night after finishing my household work and preparing for next day's classes. I have never looked back since then and have been writing novels, short stories, travelogues, essays, poetry, children literature, and literature for neo-literates in my mother tongue Odia, for the last four decades.

Exploring Relationships and Reinterpreting Social Norms

Though a writer's individuality is revealed in the excellence of creative work rather than gender, in reality, my society and culture primarily see

a woman in me. I take advantage of such an outlook. Being a woman, I am more accessible into the inner chambers of a family, which projects a true, unvarnished picture of human relationship. The drawing-room picture is always deceptive like a glossy jacket of an unworthy book. Besides this, as a woman, I spontaneously feel a sympathetic nearness and emotional involvement with the life and problems of others. Human society, be it orthodox medieval, extraordinarily modern and sophisticated, or savagely primitive, with all its virtues and vices, presents me a world of wonderful tales.

Writing is neither a luxury nor a desk job. To write, it is essential to experience life intensely. A tremendous amount of preparatory work, research in the specific area of subject matter, numerous rough sketches to ensure that nothing is left untouched may take years together to pen a story or novel. A woman writer may not be sufficiently mobile to gather experience and data; she may not be exposed to the outside world to see what is happening around her. Her experience is confined to the four walls of the house. For fifteen years, I also faced the same problem. With maturity and success in publishing a series of books, I was confident, bold, and determined to do what is needed to enrich my inner self. I travelled a lot, researched extensively, shared experience of the common mass, and continued writing. As far as my writing goes, I find a large section of serious readers.

As a writer, I have always been a rebel, a non-conformist soul, dreaming to see a world free from hunger, discrimination, corruption, crime, violence, war, and inhumanity. I always visualize a beautiful, immortal world. In real life, the writer in me is an activist, striving for social justice, individual dignity, and liberation of humanity. If I burn, I give light. If I suffer, it is always purgatorial. Rebellion is my energy for recreation of symmetry and equipoise.

Though I respect all beliefs and one God, I do not entertain fraudulent practices. I can never forget my painful experience in the famous temple of Lord Jagannath at Puri. In 1979, my friend Kamlesh Choudhury, professor of Adarsh College of Education, Pune, along with her teenage daughter, were harassed inside Lord Jagannath's Temple, as they were mistaken to be non-Hindus owing to their fair complexion. I was with them and instantly protested. I was also pestered by some of the Pandas. When the Pandas came to know of my identity, they become furious. This was because I had condemned the Shankaracharya

of Puri, for supporting sati, when Roop Kanwar of Rajasthan was burnt to death. I lodged a complaint against the misbehaviour of the priests with the temple administration, and the next day, I published a fiery article titled 'Colour of Religion is Black' in all news dailies, narrating my painful experience. I demanded disciplinary action against the Pandas and maintenance of order inside the temple to protect devotees from being exploited by the high-handedness of the priests. For this cause, I had to fight a defamation suit of one lakh rupees lodged by the priests against my article. It was only to harass me. I fought the case for ten years, and ultimately, the case was dismissed.

Revolting against the Unjust

While I was a member of Public Service Commission, I raised my voice against corrupt practices in the recruitment process. As I had received death threats, I needed police protection for some time. For this, I had to fight a defamation suit of one crore rupees for six long years, and ultimately, the case was dismissed. These are a few painful experiences in my life, which ultimately enriched my writing.

Tradition and revolt in literary phenomena and tradition and rebellion in the social context are the tasks of a writer. Images of such rebellion are not rare in Indian literature, as well as in my literature. I have lived in the stone-age civilization with the characters of my novel *Aadibhoomi* (The Primal Land, 1993), based on the most primitive and violent Bondo tribe, in Koraput district, Odisha. It is a saga of revolt and rebellion against the dogma-ridden society and exploitation of the so-called civilized people in the name of development projects undertaken to civilize them. My other rebellious novel titled *Jajnaseni* (Draupadi, 1985), whom I met in the colossal treasure of Vyasa's Mahabharata, composed 5,000 years ago, calls for a war-free human civilization based on love, peace, and cultural integration. Draupadi revolts against Yudhisthir's selfish voyage to Swarga saying, 'I do not want to go to heaven in body but want to make a heaven of earth.'

Social realism built around Mother Earth is a recurrent device in Odia fiction. My novel *Magnamati* (Earth in Trance, 2004), based on the super cyclone of 1999, is a fictional work of realism, which unravels the mystery of life and death declaring victory of life over death and

disaster. The drive for life and love for Mother Earth is the essence of this tragedy-ridden novel. The Partition of India and emergence of Bangladesh later are two important incidents in the memory bank of the writers of my time. The subcontinent was split to its third fragment, which created a new chapter in the history of the Indian subcontinent, forcing innocent people to quit their home and country. They took shelter as refugees in India, which was once their own country. They fought for the country's freedom and the result was their identity as No Land's Man. This problem has been dealt with in *Magnamati* to ventilate my anguished emotions.

Redefining Women Power

Freud, after decades of his research into the feminine soul once lamented that he failed to get an answer to the simple question: 'What does a woman want?' Instead, he should have asked, 'What is a woman?' I am sure Freud would not have got the answer to the latter question. Hence, one may infer that women power has not been utilized properly for the healthy functioning of the society.

We think that scientists and artists live in two different worlds. But philosophy and philanthropy are common binding factors between scientists and artists. Without philosophy, science or art is destructive. In our times, without science, living is not possible and life without art of living is not worth living.

Do we believe in one God in spite of a series of narrow man-made divisions among us? Are we free from dogma and stigma? Do we believe in humanity? Do we ever think that all human beings have equal basic needs? Do we trust in God? Do we trust each other? Do we trust ourselves? Perhaps we have lost trust in everybody and we trust the 'robot' more. Our scientists have done miracles. Cybernetics, walking, talking, laughing, and loving robots are the achievements. Gene industry and embryo emporium, test tube babies, and artificial insemination have become outdated. Man is heading towards human cloning. He is experimenting in creating emotions in the machine-man, while he himself is becoming emotionless. It seems as if the world has become one and small. However, in true sense, in spite of being born in one planet, we live in many small worlds of our own. We have divided ourselves in the name of caste, creed, religion, gender, geography,

language, and what not. Man has turned to the idiot box and machines are growing to be more and more intelligent. Men have become toys in the hands of their own creations. Modern man is lonely because instead of building bridges, we are building walls around us.

Eliot spoke of the progress of an artist as continual self-sacrifice, a continual extension of one's personality. Saint John Perse stated, 'It is action, it is passion, it is power and always the innovation that extends borders. Love is the heart's fire.' As a writer, my motto has always been 'Love and let live'.

At the turn of the new millennium, Indian literature, as far as the feminist thrust is concerned, is not free from family, history, and social modernism. We, the women in Indian literature, are more educated, sophisticated, and even rebellious but the woman in us is wary of shedding off traditional values, which forms part of our inherited consciousness. Moreover, western culture, which has had a dominating influence on Indian literature in pre-and post-Independence years, is not necessarily the alternate 'heaven' for the new generation in India.

Interpreting women's role in literature

The key role women played in literature and life in the past and present and in both parts of the globe is equally significant. In ancient Vedic literature of India, women were defined as Devis (goddesses). They were part of myths and legends. However, in reality, a contradictory state of affairs exists in India. Then who is the real woman? Where is the real woman? Has she an identity of her own? There is an interesting myth regarding creation of woman by Bramha who named it Woman—Man's companion. This primordial myth gave woman her identity, that is, social stereotypes which have been reinforced by archetypes for ages. In India, which has been regarded by sociologists as a traditionally male-dominated society, both men and women writers have seen woman in this relationship with man primarily as mother, wife, mistress, or as an object of desire. A woman as an achiever, leader, a strong personality, or as a worthy citizen is either non-existent or considered an exception. Her individual self has very little recognition. Indian woman has accepted this and lived with it through ages.

A writer, irrespective of gender, mothers a literary piece. Motherhood (matrubhava) dreams always a war-free, hunger-free, violence-free, and

corruption-free world where man can fulfil his noble dreams. A writer, in this sense, advocates peace in all his creations.

Writers, men, or women across borders communicate or express as human beings and not as Odia, Malayali, Indians, Europeans, Muslims, Hindus, and Christians. Nationality, religion, ethnicity, language, sex—nothing is a bar to establish a loving bond through writing. For a writer, borders only exist on the maps, not in the mind. Though opinions differ according to individual viewpoints, the vision of writers remains the same.

Tradition, especially in its literary form, is generally perceived by a given society as comprising a set of literary (creative) traits, inherited from the past. The fact is that in literary attributes, cultural domain tradition remains an essential prerequisite for the creative act in the present and in the future. Thus, where there is no tradition, creativity becomes stagnant. The creative writer blends and subverts creatively his/her inherited literary past.

For more than two and a half millennia since alphabetic writing has been prevalent among Greeks, creative writers living in different cultures and countries are in the never-ending quest of words, which can evoke purity of mind, having the mystic strength of sacral utterance of mantras. The purity of word interweaves and integrates human beings into close-knit units and universal brotherhood. I have tried to reflect this in all my writings.

When word power is misused, it creates misunderstanding leading to disharmony, violence, war, and misery of mankind. Word becomes meaningful with the help of word and thus word is above 'The Word'. Hence, man lives in a *word culture* even before the *book culture* and word power is the greatest power, not only of a writer but also of man belonging to the oral or rural tradition or civilized world. As a wordsmith, I am careful in using the words handed over to me by my forefathers.

Remaining within the frame of one's own culture, a writer is always a universal being. Therefore, language is not a barrier to universality. Cultural nuances and boundaries do not obstruct to make literature culture free, rather they add life and excellence to it.

However, critics of art mostly comprise men. Sometimes without going through the work of art, they comment about women's writing as emotional, romantic, and limited to the four walls of the house as they see the sky through the window.

Let us go back to nineteenth-century literature in Britain, when women writers imitated the dominant male tradition in literature and even used male pen names to draw the impartial attention of critics. George Eliot (Mary Anne Evans, 1819–1880), the famous novelist is worth mentioning here. Mary Anne Evans, being a famous novelist in her time, wrote under the pseudonym of George Eliot to gain entry easily into the male world of literature. She drew the attention of male critics immediately and her work was widely acclaimed. However, when her female identity was disclosed, critics exclaimed, ‘She writes like a man!’, as if it was the highest compliment for a woman writer! It is said that a famous writer of her time, an ardent admirer of her novels wrote to her when her identity was revealed, ‘If I would have known that you were a woman writer, I would have proposed to you’. This is perhaps the extreme form of male appreciation for women writers and not for women writing! Even today, women writers are marginalized and ignored, as writing has been a male territory from the beginning.

In order to study the special features of writing of women in India, we must look at their works against the backdrop of their local culture and tradition. Both feminist and post-colonialist theory provides a theoretical basis for such a study. Traditional research is biased by western interpretation of the so-called third world women writers. In post-colonialist views, western values and western tradition in thought and literature have been guilty of suppressive ethnocentrism. Even today, western models have dominated thought and literature throughout the world, marginalizing and excluding the forms and expression of ‘others’. Here the third-world writers constitute the ‘other’ group and women writers are the ‘marginalized other’ group.

We need more research to identify the differences between man and woman—the innate differences and those acquired culturally to understand the difference between the natural and unnatural. However, masculine and feminine energy are not to be compared in case of creative expression because creative expression does not require muscle power. The woman’s quest for identity gives rise to a number of issues. The new woman is emerging and there are a number of new issues to be taken up in future. Two archetypes have dominated Indian literature for ages—Sita and Draupadi. The Sita-type glorifies the silent suffering of a woman showing utmost loyalty to her husband, while the Draupadi-type portrays a woman as an individual demanding social justice.

In present times, though marginalized, women are still writing because they believe in the art. Literature in India has not become a structured system yet. However, women writers cannot wait for another renaissance in literature—revival of the golden age of Kalidas—to create great literature. Every moment in a writer's life is a propitious moment like a drop of nectar from the nectar container. Hence, women writers in India and throughout the world always swim against the tide projecting a sense of culture threshold in a vastly diverse society, and trying to knit it into a unified bond.

Writers of our generation have not seen any spectacular social revolution of any particular religious war. But we have witnessed the collapse of the socialistic world, aggressive emergence of religious fundamentalism, political legitimization of violence, degeneration of any kind of moral order, and as a result, eternal human suffering. Economic disparity, caste prejudice, and so on, still exists. Writers continue their struggle against social evil. The trend of postmodernist, continental literature has not yet arrived in a big way in our regional literature. However, one significant trend in recent times is evident in contemporary fiction. The protagonists represent world citizenship, remaining very much inside national boundary. A genuine awareness is evident in our literature to uproot colour prejudices, caste distinctions, ideological and religious differences, not destroying the fabric of aesthetic beauty and excellence of art. Hence, struggle for humanity in our literature has not turned into a bleeding war. This is the challenge before us, the writers.

Contemporary fiction writers, including me, believe that each literary deed should become an art, it should arouse the conscience of a callous society; it should lend voice to the voiceless. Fortunately, fiction usually holds the foremost position in publication in India, which shows that the readers' intellectual tastes are on the rise despite emergence of the 'no time to read' trend.

As a writer, I normally visualize things, events, and problems from various angles and aspects, and project them with an optimistic vision. The present time, no doubt, is an extremely critical phase in world history. Old orders are crumbling; old values are falling. Everything seems to be in a state of turmoil. The giant strides of science and technology are overtaking our speculation and expectations. Man's wisdom is failing to keep pace with the vast quantum of information

and practical knowledge at his disposal. Problems multiply galore. The society is bewildered. Yet the remedy is not far to seek. When from an external world the writer looks within, he/she sees a blissful world. The encircling gloom should not cloud our vision, nor eclipse our soul. A sincere love for one's fellow beings and zest for life sustains man in the world. The writer, being a creative person, should bring dignity to life and grow in his/her love so that he/she is able to embrace humanity.

As a writer, I possess broadly two worlds—an outer and one inner. My outer world is not restricted to my village, town, province, or my country but is extended to the whole universe. My inner worlds are many, spread over different plains. My creative sub-conscious is a product of a constant struggle between the inner and outer worlds to define human destiny in the universe.

Here, it will be worth mentioning the nineteenth-century Odia poet, Bhima Bhoi, who never encouraged the celebration of individual, rather the objective code of value in the group or society. Bhima Bhoi, a physically challenged ascetic poet, gave a new dimension to Odia poetry with a world-view when he wrote:

Let my life languish in hell,
Let the world be redeemed

This emphasizes a writer's spirituality to bear the general burden of humankind in any society, at any time. The Christ-like metaphor entails empowerment through spiritual sublimation of life, making the man assertive and responsible.

There is no God to rescue man from his perils; it is man who needs to rise to the level of God to eliminate the sufferings of man. Hence, significant indeed is the role played by writers at such crucial moments in human society, irrespective of gender.

Roseann O'Reilly Runte

TRANSFORMING SOCIETY THROUGH EDUCATION

recognizing the role of women

Let us turn our mental clocks back three centuries to the Age of Enlightenment in Europe. Philosophers began to regard men and women as equals and women began to claim a more important space in society. When women were denied the right to attend medical school, they stormed the doors of the college in Paris. When access to cafes was denied to those not wearing trousers, women donned the manly garb and occupied the terraces of Paris' best establishments. When the Declaration of the Rights of Man appeared, Olympe de Gouges (1748–1793), unable to write due to a lack of schooling, dictated her own Declaration of the Rights of Women.

Relooking at the Past

Olympe de Gouges was beheaded by a revolutionary tribunal and her head was placed on a platter and paraded through the streets of Paris with the warning that such would be the fate of women who took upon themselves to demand rights and freedom. She will be remembered for her heroism as a martyr, like Joan of Arc (c. 1412–1431), who led France's weary troops to victory, or Marie Curie (1867–1934), whose

brave work in science earned the Nobel Prize and who even died early due to the unprotected absorption of radiation. We remember legends because of their unique stories of courage.

Among the numerous heroines whose names have been effaced by time and erased from the annals of history are those who worked in the area of education. One example was Madame du Châtelet (1706–1749). She wrote a brilliant commentary on Newton's *Principia Mathematica*. Her exegesis of Newton's writing was among the first to make his work available to the continent. It remains, today, as one of the best commentaries on this difficult topic. Madame du Châtelet is most often remembered as Voltaire's mistress and her thoughtful writing is largely forgotten.

A second example is Madame de Genlis (1746–1830), author of 140 volumes of poetry, fables, essays, letters, and stories. She was self-taught and became the tutor to the French king's children. She invented innovative ways to capture her pupils' interest. She created miniature models of machines and processes, such as mining and smelting coal or making pottery and glass, to name but two. Each part of the model moved and her fortunate students could visualize the various processes of creation. After the Revolution, Madame de Genlis became the equivalent of superintendent of minister of education, responsible for setting up public schools and creating a curriculum for a nation determined to support democratic governance through education. From Montesquieu (1689–1755) to Voltaire (1694–1778), Rousseau (1712–1778) to Helvétius (1715–1771) and Condorcet (1743–1794), all French philosophers of the day agreed that tyranny thrived in a nation with an ignorant population and that the ability to read and write and to understand law and politics were essential qualities for citizens of a modern nation. Thus, the work of Madame de Genlis was truly extraordinary in her thoughtful analysis of teaching methods. She was impressive in being able to translate her talents to the needs of different régimes. Despite her 140 books and the fact that her models are on display in the Museum of Technology in Paris, and despite her extraordinary contribution to education, her name is unknown.

Recognizing the Role of Women

When we forget the work of women like Madame du Châtelet and Madame de Genlis, we fail to recognize those who taught us to read

and to comprehend the principles of physics and philosophy. We fail to understand that such narratives of greatness involve not only walking on the paths of danger, but also that of tedium, patience, and creativity. We need to applaud the work of the many women who devote their lives to teaching and to helping others write their own stories. These are the women writers we celebrate today in Canada, India, and around the world. These are the women working in laboratories and teaching classes equipped with the poorest and the best facilities alike. These are women leaders in every field, but most especially women who support education and who are themselves educators.

The UN has the habit of naming special days to draw our attention to the environment, to the importance of family, to important concepts like tolerance. One of the UN days is also dedicated to teachers. I wish that such a day were not necessary. Yet unfortunately, teachers are not universally respected. Indeed, they are often underpaid and undervalued. Their work is nonetheless essential to the social and economic development of society and to the realization of the finest flowering of our humanity. We have been given the power to think, to reason, to decipher symbols, and to communicate in writing, in painting, in sculpture, in music, in words, in motion, and in dance. If we do not develop these capacities to the highest degree, we fail, in some respect, to realize our full potentials. Teachers are our mentors who encourage us, challenge us, and introduce us to worlds whose existence we never imagined.

Names of women political leaders, authors, and actors trip with alacrity and ease from our tongues. However, how many great women educators or women scientists, can we name? How many women who have won the Nobel in science or physics do we remember? Can we name the several wonderful women who have taught us and cared for us individually?

If we do not attach importance to education as a profession and to women as educators, the unknown mentors who have supported us all through our lives will remain unknown. This must change. We need to begin telling the stories of fine educators whose contributions have truly created change and we need to applaud their work. By so doing, we will inspire generations of scholars, and through their inventions and creations, we will be able to change the world for the better.

My Experience as an Educator

I became president and vice chancellor of a small university in Canada in 1983. At the time, there was only another woman president and vice chancellor of a university in Canada. Since there were no role models, it was my privilege to be able to choose my own *modus operandi*. In those days, admission to several private clubs was limited to men only. Even organizations like the Club Richelieu, a version of the Rotary, did not allow women members. After dinner, women used to gather in one room where they discussed about their children and family life. The men withdrew to another room where they smoked and talked about business.

While I was most fortunate to have fine mentors who inspired me to be optimistic, the road to success for many women who first took on the role of leadership in universities around the world was not always easy. Indeed, the leadership role in higher education is not simple due to competing demands, conflicting agendas, paucity of resources, and inherent tensions in society, which are reflected in the campuses. University leaders need to promote easy accessibility in order to serve society and especially to the less fortunate who cannot afford an education and who may not have had access to qualifying programmes. At the same time, universities need to strive for excellence. There is never enough funding to support all programmes and courses that the faculty and students would like to have. Traditional teaching and philosophy may conflict with modern ideas. Technology is not always accessible and the cost of establishing a good platform can be beyond one's capacity. Linguistic and cultural differences can cause misunderstanding and lack of tolerance, which does not create a good environment for learning.

University presidents and vice chancellors need to inspire students and faculty with a strong, compelling vision and the desire to learn. They must provide the appropriate environment and tools, including laboratories and libraries, classrooms and offices, study and recreation spaces, and residential and dining facilities to accomplish such goals. They must find the funds required and this means that governments and businesses, foundations and individuals must all understand and share the vision as well. This mission is occasionally fraught with difficulties, as all groups do not necessarily share the same philosophy.

University presidents and vice chancellors should be exemplary thinkers and scholars capable of retaining the respect of their colleagues, their peers, and the public. To maintain a scholarly career while leading an academic institution requires hard work and much dedication. Yet, the satisfaction of balancing all demands well, make the job very rewarding.

When one knows the experiences of students who persevered through incredible obstacles to graduate, when one hears about former students who have done great things in the world, and when the faculty discovers a new element or invents a new theorem, there is never a question in one's mind that the long days are worthwhile. These joys outweigh those of seeing the fruits of one's efforts in building the campus, obtaining the books for the library, and the equipment for the labs. These accomplishments are nonetheless rewarding as well.

I applaud such publication for seeking texts from women who have made significant contributions to society. I hope that their stories will inspire the readers to emulate them. I am humbled to be among the number of those invited to write. I hope that my words will inspire to remember your teachers and mentors and to find ways to offer them the recognition they deserve, for it is truly through education that we can change the world for the better.

Manju Sharma

ROLE OF WOMEN SCIENTISTS AND TECHNOLOGISTS IN NATIONAL DEVELOPMENT

At the inauguration of the National Seminar on Women, Science, and Technology, Bangalore, 21 August 2006, former President A.P.J. Abdul Kalam observed:

Definitely all women scientists can play an important role in the national development The number of women scientists in the world over has been growing at a faster pace. Removing any impediments that come in the way of our harnessing this vast pool of brilliant, hardworking, and dedicated knowledge power, should be the focus of this seminar.

Women's Day celebration had started on 19 March 1911 in Austria, Denmark, Germany, and Switzerland. The International Women's Day (IWD) is celebrated on 8 March, and in 2011, the IWD will complete its hundredth year celebration. The decision to celebrate women's day was taken at the Second International Conference of Working Women in Copenhagen in 1910. The UN designated the year 1975 as the International Women's Year, and in the same year, the official sanction was given to IWD. Today, this day is observed in almost 100 countries. In China, Nepal, and Madagascar, it is a holiday only for women.

Women Representation in Science and Technology

Science and technology is the major vehicle for societal transformation and economic development of a nation. To attain sustainable development of the society, we need to ensure that women are provided equal access to science and technology, education, training, economic resources, information, communication, and marketing.

Though women make up half the percentage of human resources, yet their representation in mathematics, physical sciences, engineering, and so on, is extremely low. Also, professional women seldom reach the pinnacle of the hierarchy in academic and research institutions. A critical mass of scientists, engineers, educators, health and agriculture professionals, technicians covering a wide spectrum are needed. Utilization of the talents of women in research and development (R&D), should not be viewed only from the perspective of gender equity. It must be understood that full involvement of women in scientific and technological activities is essential for a nation's rapid economic development and sustainable happiness. In this article, I have first flagged some of the issues, which need to be taken note of in understanding the role of women scientists and technologists in the path of national development.

Key Considerations

Given below are a few reasons determining the inclusion of women in science and technology, as drawn from various discussions and published reports and need attention of the concerned authorities at various levels:

1. Science and engineering organizations, business enterprises, governments, civil society, academic institutions, and so on, need a larger scientific and technological work force
2. Inclusion of women in scientific and technological endeavour is essential
3. Science and technology, and innovation capacities must be strengthened globally with the full participation of women, nurturing their talents, mentoring and advocating them for senior and leadership positions

Global Events Emphasizing Women Inclusion

Many events and activities across the globe have drawn the attention of UN bodies, governments, non-governmental organizations (NGOs), academies, and many professional organizations to discuss concerns regarding women inclusion. The first conference held to address such issues was conducted by the UN in Mexico in 1975. A few events/discussions, held thereafter to address similar concerns, are listed below.

- Beijing Declaration, 1995
- United Nations University Institute of Advanced Studies (UNU-IAS) Report on Women and Science, 2005
- The Academy of Sciences for the Developing World (TWAS) Standing Committee on Women, 2005
- United Nations Educational, Scientific, and Cultural Organization (UNESCO) Report, 2006
- Inter Academy Council (IAC) Report on Women for Science, 2006

There has been some coordination and collaboration between organizations, such as Third World Organization for Women in Science (TWOWS), TWAS, UNESCO, *United Nations Conference on Environment and Development* (UNCED), Organization of Economic Cooperation and Development (OECD), IAC, and Indian Academy of Paediatrics (IAP), but such efforts need to be further strengthened. The Beijing Declaration and Platform for Action Report on the Fourth World Conference on Women held between 4–15 September 1995 and conducted by the UN, described gender equality beautifully as ‘an inalienable, integral and indivisible part of all human rights and fundamental freedoms’. The Beijing Declaration aimed to achieve the following goals:

- Equality
- Development
- Peace

A few examples of special institutional measures adopted in other countries, with regard to women inclusion, have been cited below.

- College of Agricultural Development at China Agricultural University has a women and development project.
- Consultative Group on International Agricultural Research (CGIAR) has 8,000 scientists, technicians, and managers, and has established the gender and diversity programme.

Such reports and conferences reveal that science as a career option for women is gradually gaining ground.

Capacity Building for Women

There is an urgent need to educate, train, and improve the skills of women at various levels. In this we need to consider:

- Need to practice gender equality
- Increase access to information, thereby arousing awareness among women
- Abolish the practice of retention of girls at the tertiary and mid-career levels
- Encourage women to study science and technology. Statistics presented in many reports related to the last two decades indicate an increasing number of women studying science and technology. For example, in the USA, a substantial number of women are pursuing post-doctorate studies in biological sciences, chemistry, mathematics, and other areas. Similarly, in India, about 40 per cent of university positions were taken by women in 2000, which is increasing gradually and steadily. According to the Indian National Science Academy (INSA) Report, 2004, 22 per cent women are pursuing engineering and technology and 40 per cent are studying science.
- Build up awareness regarding the need to educate girls. Since 1950/51, the participation of girls has increased in primary and middle schools from 28.1 per cent to 46.7 per cent and from 16.1 per cent to 44.4 per cent, respectively. However, classrooms in India are still averse to the girl child in general. At an all India level, girls' enrolment is still below 50 per cent. The Gender Parity Index (GPI), which is currently 0.91 reflects that classrooms are skewed against the girl child.

In the purview of capacity building for women, however, it is essential that the following aspects be considered:

- Inclusiveness of women in science and technology leadership throughout the world
- Commitment at the highest level
- Regular review of policies and procedures
- Transparency in appointments, recruitments, promotions, awards, and so on
- Ensuring leadership, training, and mentoring

Empowerment of Women at the Grass-root Level

A lot needs to be done to improve the status of the farming community in rural areas. Most farming operations are performed by women. However, few amongst them get the opportunity of being trained. In this regard, a large number of schemes have been implemented by various governmental departments, especially the ministry of science and technology, which have proved immensely beneficial. Some of the key issues focused are:

- Orientation of the trainers
- Setting up of knowledge centres in rural areas
- Strengthening, modifying, and creating, institutional framework, wherever necessary
- Generating a cadre of women scientists and engineers
- Empowering women at the grass roots
- Implementing community based projects
- Ensuring livelihood at the grass-root level;
- Identifying and developing appropriate technologies
- Establishing training and mentoring centres, and promoting entrepreneurship
- Ensuring financial assistance

The basic philosophy must be to advocate the application of science and technology, which would foster job-oriented economic growth and social happiness.

Specific focus is needed in the areas of agriculture, healthcare, biotechnology, information technology, in addition to basic science—physics, chemistry, and mathematics. Technologies must ensure that the drudgery of women, especially in rural areas, be reduced. Agricultural instrumentation to meet the requirements of woman and special health care projects are very important. Combating malnutrition calls for all-round attention. Missions/projects need to be time-bound, target-oriented, and technology-driven. Science departments have done commendable work and very many successful projects are under implementation. The Technology Parks, Biotechnology Park only for women at Chennai, tissue culture facilities, and many projects for specific training are some successful examples. These need to be multiplied manifold.

Empowerment through Intellectual Realization

Realizing women's intellectual potential is a big challenge. Women's involvement can be very useful and productive in projects such as averting starvation; changing unhealthy living conditions; preventing major epidemics; enhancing employment opportunities through various skill-oriented operations, and so on. For sustainable agriculture, women need to be trained and involved. Low representation of women in science and technology is a major hindrance in the development of a nation, society, and a family.

James Padilla, president of Ford Motor Company (2005) had commented, 'Voices that are silenced or ignored, for whatever reason, represent not only an injustice but also a valuable resource that has been wasted, a tragic waste of human capital.' This statement is true, relevant, and critical of the full utilization and representation of women in science.

Good Management Practices Ensuring Women Inclusiveness

The report titled 'Women for Science—An Advisory Report', issued by IAC, 2006, suggests the following measures as key components of good management practices to ensure women inclusiveness:

1. Top-level commitment
2. Reviewing policies and procedures for gender impact
3. Transparency in communication, recruitment, and promotions
4. Widening the 'inner circle'
5. Leadership, training, and mentoring
6. Supporting a healthy work–family balance
7. Regular monitoring; sex-disaggregated statistics
8. Advocating and promoting women education and careers of women
9. Engaging women as partners in science and technology global capacity-building
10. Creating inclusive institutional climate
11. Advising governments and key players on specific actions

12. Harnessing science and technology in a gender-sensitive manner
13. Confidence-building amongst women scientists
14. Understanding and realizing the multiple roles that women need to play and providing suitable support systems to reduce their drudgery and strain
15. Considering health, food, and nutritional security as critical issues and advising governments to launch specific targeted missions to take care of pregnant and nursing mothers, particularly children
16. Networking amongst women scientists and technologists, academic and research institutions, NGOs, international bodies, and governments
17. Establishing a committee that addresses gender issues and tracks progress
18. Promoting women members to decision-making levels and appointing women scientists to panels and committees
19. Increasing the number of women scientists in the nomination pool for membership, prizes, and awards; giving visibility to women scientists, and representing women as well as men in the academy's portrayal of science
20. Paying attention to gender implications of the research it supports and evaluates
21. Adopting good management practices, that is, inclusiveness, in its institutions and advocating such practices across the science and technology community.

Role models are essential for enthusing young girls to join science as a career. Madam Curie, who got the Nobel Prize just after two years of establishment of the Nobel Foundation—first, in 1903 in physics when she shared it, and then second in 1911 in chemistry, created history by winning two Nobel Prizes in a span of eight years. We are aware of the difficult conditions and laboratory arrangements under which she worked and yet, she excelled.

Biotechnologists can never forget the work of Dorothy Crowfoot Hodgkin (1910–1934) on crystallography leading to the structure of the important biological crystals. She won the Nobel Prize in chemistry in 1964. Barbara McClintock (1902–1992), a geneticist, won the Nobel Prize in 1983. We have very renowned women scientists in this country, namely, Ashima Chatterjee (1917–2006), Archana Sharma,

Sipra Guha Mukherjee (1938–2007), Kasturi Datta, Veena Tandon, and Vijaylakhsmi Ravindranath . Many international assessments, including those made by European Technology Assessment Network (ETAN) Report, bring out a glaring truth that the number of senior scientific positions occupied by women scientists is small. They make up less than 15 per cent of the university professors. Even the data regarding the membership of the world academies reveals an undemocratic and extraordinary picture where the percentage ranges from 0.4 in Netherlands to 14.6 in Turkey with an average of about 6 per cent.

–US national academies	–6.2%
–Royal Swedish Academy of Sciences	–5.5%
–Third World Academy of Sciences	–3.9%
–Royal Society	–3.6%
–Indian Academy of Sciences	–3.1%

Somehow, in many parts of the world today, science and technology interventions have treated women primarily as recipients of knowledge and have underestimated their importance as generators of innovations and as a dynamic agent of economic and social change. In empowering woman with scientific and technological skills, women scientists and technologists themselves have a major role to play. Biotechnology and biosciences including medical, agriculture, and basic research have opened up new opportunities. The involvement of women scientists and technologists in physical sciences, especially in the National Aeronautics and Space Administration (NASA) dates back to 1903. They worked as explorers, pioneers, and innovators. By the end of the twentieth century, at least 25 per cent of the astronauts at NASA were women, while 16 per cent were scientists and engineers.

In the twenty-first century, science and technology in our country would aim at achieving greater feats, particularly by putting in more efforts to harness science and technology for the welfare of the society. The challenge, task, and opportunities are enormous for new discoveries, innovations, application of research findings, and creation of a knowledge-based society.

Women scientists and technologists are appreciated for their dual role in society, as mothers caring for their children and family, and pursuing scientific research as a career. We should also nurture and cherish their qualities of culture, compassion, courage, and creativity, and above all,

their cooperative spirit—the five ‘Cs’ are personified in their personality. As Rabindranath Tagore in his poem ‘Stray Birds’ comments on women’s personality:

Women, when we move about in your household service your limbs sing like a hill stream among its pebbles.

Women thou hast encircled the world’s heart with the depth of thy tears as the sea has the earth.

Women in your laughter you have the music of the fountain of life.

The following points need to be focused upon to improve the position of women in our society and augment their contribution in science and technology:

1. Rapid, but uneven transformation of society is probably caused by phenomenal progress in science and technology across the globe. The developing countries have to pay attention to the total human capital. The precious resource, that is, the women cannot be ignored.

2. The dawn of the twenty-first century is marked by a clear message—sustainable transformation through knowledge as a driving force for human development. Knowledge of science and important technological capabilities driving and opening up new production avenues is essential.

3. The Millennium Summit has recommended an unprecedented and extensive use of knowledge for the welfare of the humankind. The Third Millennium Development Goal also calls for gender equity and empowering of women.

4. Professional bodies and institutions can give a major thrust to create a knowledge-based society involving women scientists and technologists and create a strong sustainable science and technology base, which will affect society at all levels. This intellectual capital of half of the human resource on planet Earth should be an integral part of the accelerated scientific and technological drive towards progress, peace, and happiness of humanity.

We always need to remember the golden words of the Father of the Nation: ‘When a man is educated, an individual is educated, when a woman is educated, a family and a country are educated.’

R. Sujatha

RESEARCH, EDUCATION, AND POLICY

empowering women in the Indian context

This article is in response to a solicited contribution for the volume to be brought out on the occasion of the Women's Science Congress. As I have written briefly about my research career elsewhere (in *Lilavati's Daughters*), it seemed a better idea to write about two other areas that have interested me in recent years, which are education and policy formulation in the broad areas of education and science and technology. However, as mathematical research is my main interest and forte, I shall quickly capture that aspect of my career first.

Being a Research Scholar

The 1980s seem to be from a different era when one looks back at the current networked world and the swirl of information. Even though I was born and brought up in the city of Bangalore (dubiously upgraded now to a metropolis), exposure to career possibilities were scarce. The early 1980s was also the period when the gateway to IT was being erected in Bangalore, which was unknown to many of us. The rush for admissions to professional courses, especially computer science was gaining ground. Blissfully unaware of the opportunities that existed if I pursued a bachelor's degree in physics, chemistry, and mathematics,

I chose to follow my heart and moved away from the professional courses. It was a serendipitous accident that I saw the advertisement in the last page of the *Times of India*, sometime in April 1985, inviting applications for research scholars at Tata Institute of Fundamental Research (TIFR). I was fortunate to be selected and joined TIFR as a research scholar in August 1985.

I graduated under the guidance of Parimala Raman and the research area for my thesis was the study of quadratic forms over function fields of real surfaces. The early years at TIFR were intense as it meant learning new areas of mathematics rigorously. In addition, it was completely different from college atmosphere as there was a lot of self-learning and peer learning that was embedded in the research culture. My post-doctoral assignment at Regensburg University helped me see the larger world of mathematics. It also exposed me to universities outside India, and taught me to step out of my comfort zone in learning and research. This helped me subsequently to shift to new areas of research and I made the first transition from Algebra to Algebraic Number Theory in the early 1990s, when I was a post-doctoral at Ohio State University. I have been fortunate to learn new techniques and work on problems in different areas, as I had worked with many collaborators. In the late 1990s, I shifted to arithmetic geometry and worked mostly in Non-commutative Iwasawa theory ever since.

Taking Part in Policy Formulation

In 2007, I was pleasantly surprised and deeply honoured to be invited to be part of the National Knowledge Commission (NKC). This was formed as a high-level advisory body to the Prime Minister of India, under the chairmanship of Sam Pitroda, with the objective of 'transforming the knowledge landscape of the country'. The term of the Commission ended in March 2009 and my eighteen months of association with the NKC taught me valuable lessons on the larger educational landscape in the country and the challenges that lay ahead of the nation. It was also a learning experience for me in many other ways as it provided an opportunity to hear different voices and approach a problem from manifold perspectives.

My main areas of work during my term on the commission were school education, attracting talented students to mathematics and

science, and spurring research in universities. Apart from being linked to the stakeholders, the other refreshing aspect of working for the NKC was the professionalism of the team. The young research associates were impressive in their diligence, idealism, as well as pragmatism. We would like to think that the legacy of the NKC has been the recent churn, debates, and initiatives in the fields of education, innovation, and skill development that the recommendations of the NKC have catalysed. It would, of course, be simplistic and arrogant to ever imagine that an advisory body can bring about the deep changes that are required in today's scenario, but the NKC experience leads me to believe in the art of the possible even in the face of seemingly unsurmountable obstacles. It also brought home the obvious necessity of advisory bodies working closely with the implementing and executive agencies. The road is long and we should remain cautiously optimistic.

Policy formulation and planning is an important pillar of the course a nation charts for itself. I have been fortunate to be modestly involved with some policy-making bodies, largely related to higher education and science research, in the last couple of years. We live in interesting but uncertain times as far as the global economic scenario is concerned. The recent recession has meant that some of the powerful economies of the West now face bleaker prospects for the future. This has translated to drastic budget cuts in the areas of higher education and research. Paradoxically, this comes at a time when some of the Asian and emerging economies are marching ahead. Countries like China, South Korea, Israel, and Taiwan have seen sustained investments in education and research for over a decade and a half, and are beginning to reap the benefits. Other countries like Brazil and Chile are beginning to explore strategic areas of research specific to their national contexts. The economic growth that India has witnessed in the last decade has seen increased investments by the Government of India in education and science and technology. However, this has come after years of stagnation in ideas, investment, and thought in these areas. It will thus take several years before the results and benefits of the investment in the recent years begin to accrue. It is vital that in this interim period, when there is a gathering of momentum, there is also an unwavering focus at the helm in terms of policy making, identifying goals, and monitoring progress. For the last five years or so, I have also been teaching in a few undergraduate institutions in the country. This has been a rewarding

experience and in many ways a perfect complement to the years before that were spent as a researcher.

Problems of Democratizing Education

Let me now, for the rest of the article, move to some general perspectives on the broad areas of the title, rather than from the point of view of my career. Firstly, the universalization of primary (and partly secondary) education has meant that it is accompanied now with a concomitant spillover in tertiary or higher education. Thus, there is a resultant 'massification' of higher education and it is no more the preserve of an elite section of society. This is by no means unique to India and is true of many nations today. However, the scenario in India is fraught with additional complications due to diversity, demography, social structures, and political and democratic compulsions. Thus, while democratizing higher education and ensuring a fair and inclusive participation remains a universal challenge, addressing it in India needs multiple innovative approaches. While the expansion and investment by the government in establishing new centres of learning are welcome, it is important to bear in mind that building 'world class' institutions cannot be restricted to mere pronouncements and statements of intent. It has to be accompanied by a complete understanding of the process and ceaseless striving towards creating such models.

In India, historical reasons along with lack of thought, transparency, and action have resulted in the country not having many modern research universities of international standards. The few new undergraduate teaching institutions established in recent years are a welcome step but face the challenge of acute faculty shortage as well as securing effective and efficient administrative structures. Education is today increasingly global, with nations competing to attract not just the best faculty, but also competent students. Consider the following excerpts from an advertisement in a recent issue of *The Economist* (22 August–2 September 2011) for the post of Provost in Nazarbayev University in Kazakhstan.

Nazarbayev University is an innovative institution delivering world-class teaching and research. Located in Astana, it is the product of a groundbreaking partnership between the Government of Kazakhstan and eight of the world's leading research universities. ... The University opened in 2010 with

a Foundation Programme run by University College London for about 500 students. It aims to grow considerably in the coming years. An international outlook and enterprising spirit are fundamental characteristics of the institution. The language of instruction is English.

Here are the qualities it seeks from the applicants:

Both teaching and research aspects of academic policy will be developed and directed by the Provost. He or she will also play a key role in representing the university externally, helping to sustain its relationship with the government and higher education institutions in Kazakhstan and abroad and establishing the university's reputation in the region and beyond. Candidates will model the energy and vision of the university as a whole, both expressing the potential and ambition of Kazakhstan and connecting it to the wider world.

While we recognize that the primary aim of our nation should be expansion towards accommodating students within the country, what is striking about the advertisement is that a recently modernizing nation like Kazakhstan is so openly ambitious of staking claim to compete in the globalized education space. The same issue carried an advertisement inviting nominations for the post of chairperson, University Grants Commission, Government of India, and it was heartening to see that the nominees sought were persons who can 'energetically and imaginatively steer the higher education sector along the path of competitive excellence for promoting access, equity, and quality towards inclusive development', and should possess 'a proven track record of dynamic, idea-centric leadership in institution building, flair for innovations, and global outlook in higher education'.

In my humble opinion, making meaningful strides in the higher education sector necessitate that the areas of education, research, and policy consciously move from its present silo structure towards a seamless integration. The need to integrate policy with research at various levels cannot be overstated. The challenges of globalization has meant that there is an urgent need to cogently address the challenges of energy security, food security, water scarcity, and public health. Globally, advances in these areas are largely being made in the research laboratories and universities. Implementing these and deploying them on the ground is incumbent upon establishing synergies between diverse institutions like universities, funding agencies, and public policy-making bodies. For instance, scientific advances and expertise should

be harnessed and deployed to tackle the problem of food storage in the country or other basic health issues like contaminated groundwater. We can no longer afford to have knowledge generation and knowledge deployment in two different, disconnected pathways.

As another example, in a recent news item, an article quotes Naval Taneja, an aviation expert from Ohio State University analysing the financial health of Air India (see *Mint*, 5 September 2011). In many countries, plans for efficient infrastructural design, auctions of government resources, tapping the natural resources of the nation, city transport networks, communications, public health programmes, and so on are made in close collaboration with experts from knowledge institutions and universities. In addition, universities, apart from functioning as elite institutions focusing on the advancement of pure and abstract knowledge are also reaching out to communities in innovative ways to spread skills and train people from different backgrounds with appropriately designed modules and using technology. India needs to urgently encourage such initiatives and foster agile and nimble institutions that are constantly setting goals, evaluating them, and adapting themselves. It is here that translational research in a whole gamut of areas needs to be urgently put to action.

School Education and Empowering Teachers

No edifice of higher education can rest strongly on artificial pillars. To make such structures sound and solid, the strong pillars that it rests on has to be school education. In the last two decades, India has awakened the appetite of school education among its masses through a series of commendable policy measures and financial outlays. Unfortunately, while it is encouraging to see school children in far flung areas march to school in their uniforms with their school bags, what transpires inside the classrooms should cause despair. Many studies are now showing that learning outcomes are well below expectations and absenteeism of teachers is a serious problem.

In my opinion, since the bulk of the new student population in schools come from underprivileged sections of society and are first-generation learners, the process of learning is going to be something of a struggle. It is also well documented, that as a nation, the amount that

people, across different strata in society, spend on education in India at all levels is among the highest in the world. Having led the initiative of attracting families to entrust the minds of their young to government schools, it does not behove the government to abandon its role as a quality provider of basic education. Serious efforts and innovative ideas are needed to repair primary education in schools, as well as incorporate certain levels of imparting skills in secondary education. This will be a long process but it needs to be embarked upon with a sense of urgency. It should be accompanied by a dispassionate, periodic analysis to separate successful programmes from others, and an effective mechanism of sharing the experience and the lessons learnt.

The diversity of the country necessitates different approaches that are dependent on a variety of factors. It is here that the teachers can play the most important role. Numerous stories on teachers playing truant, suitably publicized, have led to an erosion of public respect for the teaching profession. Nevertheless, there is ample reason to believe that there are an equal number of committed teachers, who work with a passion and commitment that rarely commensurate with their working conditions. Teachers are the most important links between students and the larger outside world and they should be empowered both to advance in their own profession, as well as participating in the reforms in school education. From curriculum design to student assessments, teachers have an important role to play and they should be treated as equal and valuable partners in advancing public school education in the country. The abysmal state of reading material and educational aids, especially in the vernacular languages needs to be addressed, and here again, committed teachers with years of experience can be of great help. Strong and active teachers' associations, which function as professional bodies and are apolitical need to be encouraged. These associations should serve as the link to teaching experiments and feedback from the ground, as well as valuable pointers to talented students. There are numerous other tasks that teachers' associations can take on, and in the long run, serve as an independent body for consultations with regard to curricula, policy, and so on. It is clear that our country is lagging behind even the basic steps in all these fronts, and it is a slow, painful, and arduous task to carefully nurture and sustain these different focus groups, with constant revitalization.

Role of Women in Transforming Society

A necessary part of transforming society from the ground level lies in empowering women. I am a firm believer that diversity at decision-making levels, especially gender diversity, brings added value. A recent diversity study by the Gender Diversity Benchmark for Asia 2011 reports that India is the worst among the six top Asian economies when it comes to the representation of women in the workforce at junior and middle-level positions and performs only slightly better than Japan at senior-level positions. There should thus be comprehensive empowerment, with of course the educational, health, and financial aspects being most important. Further, political empowerment along with participation in decision making is vital. A new worrying aspect is the gender divide brought about by the digital age; in the decades ahead, literacy alone without ease and comfort in accessing and using technology is bound to become the equivalent of illiteracy today. This divide needs to be stemmed right at the start, preferably at the school and village panchayat levels that provide learning and experimenting spaces for women to use technology. Deep and meaningful transformation in an old culture like ours needs the lives of tens of millions of women across all sections to undergo a sea change, rather than just thin layers at the top.

CONTRIBUTORS

KUNTALA KUMARI ACHARYA, well-known Odia literary figure, is the recipient of the Orissa Sahitya Akademi Award. She has been at the forefront of public life in Odisha since her adolescence and has contributed immensely in social development enterprises and socio-political activities. Member of Indian Red Cross Society, chairperson of State Adoption Scrutiny Committee, president of All Orissa Women's Council, secretary general of Country Women's Association, and the founder president of Sangeet Kala Pratisthan, Kuntala Kumari has also been conferred Kadambini Saraswata Sammana Vikas Ratna Puraskar.

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PADMA BANDOPADHYAY was the first woman air marshall in India. A postgraduate in aerospace medicine, MD and PhD in physiology, and a gold medalist from AFMC (Armed Forces Medical College), she has carried out extensive research in the Himalayas to formulate an acclimatization schedule for armed forces personnel. Recipient of the Indira Priyadarshani Award and the Zee Astirva Award, she has conducted research in the icy Arctic for four months to help soldiers adjust with the Arctic environment.

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ARMAITY S. DESAI is former chairperson, UGC (University Grants Commission), and director, TISS (Tata Institute of Social Sciences). She was involved in developing and implementing the Ninth Plan policy document and the UGC Fifth Pay Committee Scales. She has served in committees and training programmes related to social work education in the Asian region with the UN, as well as with two committees of the Commonwealth Secretariat, London. Currently, she is a member of two committees appointed by the UPSC (Union Public Service Commission) to review policies and training. She is also on the task force for higher education in Karnataka.

RAMA DEVI is a prolific writer and a well-known social activist. Her main source of inspiration had been her father Pandit Nilakantha Das of 'Pancha Sakha' and her mother Radhamani Devi, one of the first woman freedom fighters. She contributes regularly to various Odia literary magazines. For the last twenty-two years, she has been

paying tribute to her husband through her poems. Most of her literary contributions focus on social reforms.

NAINA LAL KIDWAI is executive director on the board of HSBC Limited and country head of HSBC India. An MBA from Harvard Business School, she has been recognized in India and abroad with several awards for outstanding leadership in business. Ranked in the *Fortune* Global List of Top Women in Business; in the *Wall Street Journal* and *Financial Times* Global Listing of Women to Watch, Naina was listed by *Time* magazine as one of their fifteen Global Influentials in 2002. Her interests include microfinance and livelihood creation for rural women and environment. She received the Padma Shri in 2007.

RAJ MANDA, PhD in biochemistry and molecular biology and MBA from the University of Florida in Gainesville, USA, she has been working in the tissue banking industry in the USA for the past twelve years. She is also senior professor of Marketing in the School of Management at the KIIT University, Bhubaneswar.

SONAL MANSINGH, renowned danseuse, has served as chairperson of National Sangeet Natak Akademi and as Trustee of IGNCA (Indira Gandhi National Centre for the Arts). She is the founder of Centre for Indian Classical Dances, Delhi. A philosopher, who re-interprets and relocates dance in the vortex of contemporary world, Sonal is the only danseuse to receive Padma Vibhushan. Recipient of the title of 'Kameshwari' from the ancient temple of Kamakhya at Guwahati, Assam, she has been honoured with DLitt by Sambalpur University, Odisha.

KIRAN MAZUMDAR-SHAW is chairman and managing director, Biocon Limited. An outstanding technocrat of global standing, Kiran has been named by *Time* magazine as one of the 100 most influential people in the world and has also featured on the Forbes list of the World's 100 Most Powerful Women. Recipient of several prestigious awards like the Nikkei Asia Prize, 2009, the Veuve Clicquot Initiative for Economic Development for Asia, Padma Shri, and Padma Bhushan, her pioneering efforts in industrial biotechnology have drawn global recognition.

TULASI MUNDA is a noted social activist, who has dedicated her life to social work since the age of thirteen. She had joined the camps of Vinoba ji in the year 1963–64 and got the Shanti Sena Training in

Indore in 1965. She began Adivasi Vikas Samiti in Serenda and worked for the deprived tribal people. Tulasi has received the Padma Shri for her selfless work for the indigenous population.

SOBHA NAIDU is one of the foremost Kuchipudi dancers, and has performed extensively in India and abroad. Her portrayal as Chandaliika, Parvathi, or Sri Krishna, and her choreographed ballets like 'Sri Krishna Parijatham', 'Sri Krishna Saranam Mama', and 'Jagadananda Karaka' have been widely acclaimed. Sobha is the principal of Kuchipudi Art Academy, Hyderabad. Recipient of Padma Shri and Sangeetha Nataka Academy Award, she performs and conducts dance shows on television regularly.

INDIRA PARIKH, founder president of Foundation for Liberal and Management Education, Pune; founder member of Sumedhas: the Academy for Human Context; and is on the board of IOC (Indian Oil Corporation Limited), she is former dean of IIMA (Indian Institute of Management, Ahmedabad). Indira has received several prestigious awards, including Lifetime Achievement Award for Best Teacher in Management by Ascent in World HRD Congress, 2001; the Sixteenth Business School Affaire and Dewang Mehta Business School Award for Lifetime Achievement; the Visionary Leader Award by DNA and Stars of the Industry Group; and the Achiever's Award among others.

SWATI PIRAMAL, first woman president of ASSOCHAM (Associated Chambers of Commerce) in 2009–10, is one of India's leading scientists and industrialists, involved in public policy, focusing on public health, health policy, and innovation for India. An alumna of the Harvard School of Public Health, Swati has been nominated eight times as one of the Twenty-Five Most Powerful Business Women in India and is a part of the Most Powerful Business Women: Hall of Fame.

PRATIBHA RAY is an eminent Odia fiction writer, who raises her voice against social injustice and corruption through her works. A former professor and member of the Public Service Commission, Pratibha is the recipient of the Moorti Devi Award (1991) from Bharatiya Jnanapith Trust, Sahitya Akademi Award (2000), and Padma Shri (2007) for her contribution to the field of Indian literature. Her writings have been translated into various languages, including English and Hungarian.

She has travelled widely and given lectures on various issues. She is the founder president of Bhashayan, a national literary organization.

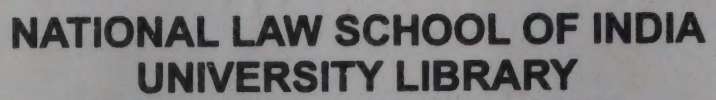
ROSEANN O'REILLY RUNTE is president and vice chancellor of Carleton University. Author of numerous scholarly works, she holds the Order of Canada, the French Order of Merit, the Palmes Académiques, and is a Fellow of the Royal Society of Canada. She is a member of both the European and the World Academy of Arts and Sciences. She has been the president of the Canadian Commission for UNESCO and the Humanities Federation of Canada, and was on the executive board of the Royal College of Physicians and Surgeons.

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R. SUJATHA is professor of mathematics at the TIFR (Tata Institute of Fundamental Research), Mumbai. She has more than three decades of teaching and research experience. Former member of the NKC (National Knowledge Commission), Sujatha serves as a member of the National Innovation Council and the Scientific Advisory Council to the Prime Minister.

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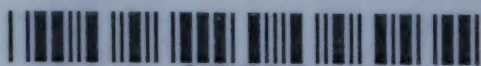


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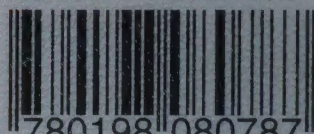
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